COMPLETION REPORT FOR PROBE HOLE C3832 (TX-104) TX TANK FARM 200 WEST AREA

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TERMS

below ground surface BGS

centimeter cm

cps

counts per second U.S. Department of Energy DOE

foot ft

ft•lb foot-pound

inch in.

pCi/g picocuries per gram

COMPLETION REPORT FOR PROBE HOLE C3832 (TX-104) TX TANK FARM 200 WEST AREA

1.0 INTRODUCTION

The U.S. Department of Energy (DOE) assigned the River Protection Project Single-Shell Tank Program the tasks of transferring waste from the single-shell tanks to double-shell tanks and developing and implementing a strategy to retrieve single-shell tank and miscellaneous underground storage tank waste. In support of the eventual retrieval of this waste, the Single-Shell Tank Program Vadose Zone Project was given responsibility for collecting and providing subsurface data from the single-shell tank farm facilities. This data is intended to provide an understanding of the distribution and movement of contaminants in the vadose zone under and adjacent to the tank farms. Subsequently, a work plan was prepared to collect field characterization data in and near Waste Management Area TX. This planned activity is intended to support decision-making relative to DOE/RL-99-36, *Phase 1 RCRA Facility Investigation/Corrective Measures Study Work Plan for Single-Shell Tank Waste Management Areas*. The document, RPP-7578, *Site-Specific SST Phase 1 RFI/CMS Work Plan Addendum for WMAs T and TX-TY*, was necessary to identify and plan characterization efforts as part of DOE/RL-99-36.

The data requirement goals identified through a data quality objective process are documented in RPP-7578. The outlined goals include the tasks, project responsibilities, and schedules for the characterization efforts. One of the identified field characterization efforts is the collection of vadose zone data from the installation of up to four closed-end probe holes in the TX tank farm.

Utilizing RPP-7578 as guidance, DFSNW-DOW-006, *Description of Work: Drilling and Sampling* was prepared defining the methodology and actions for drilling and sampling a series of probe holes in the TX tank farm. This report provides information for the planned series of probe driving activities. DFSNW-DOW-006 included selected sampling depths, borehole construction and sampling methodologies, geophysical logging requirements, decommissioning directions, environmental health and safety program directions and quality control drivers. This borehole completion report is a summary of activities and sampling efforts for the placement of probe hole C3832 adjacent to tank TX-104, the first in the series planned under DFSNW-DOW-006. See Figure 1 for a location map of the 241-TX tank farm and Figure 2 for a detailed location map of C3832 and other wells, probe locations, and tanks in the project area. Appendices to this completion report contain copies of the following documentation generated during performance of the outlined work:

- Field activity reports (Appendix A)
- Geologic/Sample logs (Appendix B)

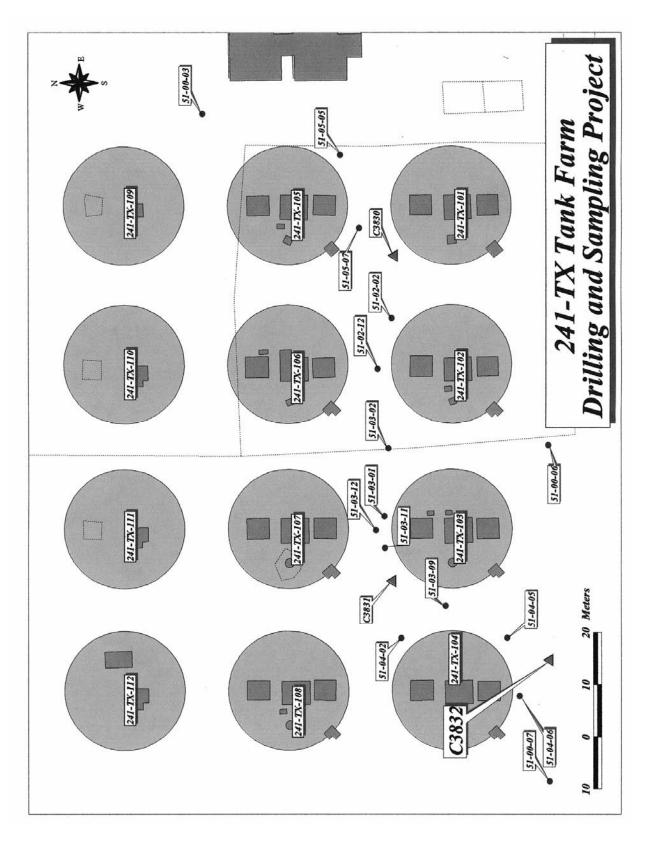
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- Geophysical logs (Appendix C)
 - Moisture logs gathered from 14 dry wells in the TX tank farm
 - High-Purity Germanium (HPGe) and moisture logs from probe hole C3832
 - February 26, 2002, letter and attachments from Pacific Northwest Geophysics to James Meisner and March 5, 2002, letter and attachments from Pacific Northwest Geophysics to Kent Reynolds.
- Chain of Custody/Sample Analysis Requests (Appendix D [includes summary sheets])
- Blow count forms (Appendix E)
 - Casing driving
- Field logbook entries (Appendix F)
- Equipment cleaning forms (Appendix G)
- Washington State Department of Ecology (Ecology) documentation (Appendix H)
 - Start and decommissioning cards
 - Completion report with Final As-Built.

Central Plateau Operations Areas Hanford Site 241-TX Tank Farm Drilling and Sampling Project

Figure 1. Location of 241-TX Tank Farm.

Figure 2. Location of C3832 and Other 241-TX Tank Farm Wells, Probes, and Tanks.



2.0 SUMMARY OF ACTIVITIES

Duratek Federal Services, Inc., Northwest Operations (DFSNW) began preliminary design and procurement planning for samplers, casing jacks and wrenches in support of the TX scope of work in late January 2002. This was followed by procurement of the necessary field equipment and support (drill pipe, casing, casing tips and shoes, samplers, casing and drill pipe wrenches, casing jacks and contracting for drilling support) in February and March. Fifteen dry wells in the vicinity of the planned probes were selected for moisture logging and 14 of the selected wells were logged and analyzed by late February 2002. Concurrent with equipment procurement and moisture logging and analysis, DFSNW-DOW-006 was prepared and submitted. The purpose of DFSNW-DOW-006 is to guide field activities, call out selected sample depths and provide documentation of planned activities to tank farm operations.

Field activities relating to C3832 (the first of the three planned probes) commenced with staging of the probe-driving equipment to the 200 West Area for radiological survey on April 29, 2002. Staging of support equipment and setup of the probe driving system on location began on April 30 and concluded with mobilization of the equipment from TX-104 (C3832) to the TX-107 probe site (C3831) on June 28, 2002. Field Activity Reports were generated by DFSNW field oversight personnel for each day of the deployment and copies are included in Appendix A. Excluding weekends and holidays there were 39 field days associated with mobilization, drilling, sampling, logging, decommissioning, and de-mobilization related to probe hole C3832 adjacent to TX-104. The total days on location included four days of rig-up and rig-down activities, two days for borehole decommissioning, three days of geophysical logging, and 18 days of driving casing and sampling. The remaining time onsite was stand-by days due to adverse weather, rig repairs and work delays caused by tank farm documentation problems. The total sampled depth of 115.89 ft below ground surface (BGS), as measured by steel line tape, was reached on June 3, 2002. At this depth the probe casing was at a total of 114.29 ft BGS, at refusal, and was approximately 2.3 ft into the highly cemented portion of the calcium carbonates of the Cold Creek sediments. Blow counts exceeded manufacture's recommended numbers per advance depth at this point. Prior to decommissioning, geophysical logging was completed to total depth with moisture and HPGe spectral gamma detectors. Decommissioning of the borehole commenced on June 12, 2002, and was completed on June 13.

Nineteen (19) split-spoon samples, 1.25 ft long x 2.5 in. in diameter, were collected at specified depths for potential chemical and radiological analysis during the drilling/driving of this probe. (See Appendix D for information regarding sample depth, Chain of Custody, etc. and Appendix B for geologic descriptions of the samples retrieved). One zone (sample number S02046-05 collected from 44.14 ft to 45.54 ft BGS) displayed indications of excess or free water after sampling. When the sampler was removed from the borehole, water was observed dripping from the bottom shoe of the sampler and free water had been forced from the vent hole at the top of the sampler liner chamber. Before the hole was advanced beyond this depth, driving activities were placed on stand-by and the probe hole was monitored approximately two hours for accumulation of free water by use of e-tape measurements (no free or standing water was observed). Sampling results are discussed further in Section 3.2.1.

Only one sample collected had any radiological contamination detected by field instrumentation. Sample SA02046-13 collected from 82.99 ft to 84.34 ft BGS had Geiger-Muller count rates in the 250-300 counts per second (cps) range when compared to an average of 200–250 cps as a background level in the TX farm. The elevated count rates on field instruments correlates to the area of highest levels of Cobalt-60 contamination identified by HPGe spectral logging for the C3832 probe hole. HPGe spectral logging identified ¹³⁷Cs above background levels from surface to approximately 1.5 ft BGS with a peak of 0.5 pCi/g at 0.5 ft and ⁶⁰Co detections from approximately 75 ft BGS to the total depth of the probe advance. At 79.5 ft BGS spectral analysis indicates 1.2 pCi/g of ⁶⁰Co (highest rates analyzed) and up to 15 pCi/g of ²³⁸U at 109 ft BGS. See Appendix C for borehole geophysical analysis results.

The position of this boring was initially located by CH2M HILL Hanford Group, Inc. DFSNW personnel subsequently documented the location at Easting 566717.68 m, Northing 136137.32 m at an elevation above sea level of 206.22 m (676.57 ft) by use of Global Positioning Satellite instrumentation.

3.0 DRILLING AND SAMPLING DETAILS

3.1 DRILLING

Per the referenced description of work (DFSNW-DOW-006), the casing utilized was a design configuration proven at the SX-108 Slant Borehole Project; e.g., P-110 carbon steel, 18 cm (7-in.) OD x 13 cm (5-13/16-in.) ID with a pin pile thread. Details of the design configuration and methodology are discussed in RPP-6917, SX-108 Slant Borehole Completion Report. The majority of the casing string was composed of 5-ft joints with several 2-, 3- and 4-ft joints for positioning the probe end at proposed sampling intervals. Based on engineering calculations, prior testing and previous success at SX-108, the thread pattern was selected to withstand the expected driving force as well as the maximum pull back capacity of the selected casing jacks. The drilling rig was equipped with an ICE-40 pile driver, which delivers approximately 40,000 ft•lb of force in the vertical position. The rig, pile driver and remote handling arm configuration were successfully utilized previously for the SX-108 Slant Borehole project. The pile driver provided adequate force to drive the casing to a total depth of 114 ft BGS. At approximately 112 ft BGS the highly cemented facies of the Cold Creek sediments were encountered. Blow counts indicated refusal and only another 2.29 ft of further casing advance was possible. On initial driving the casing was observed to be off vertical by approximately 1½ to 2 degrees in a northwesterly direction (e.g., tip angled away from TX-104 tank). DFSNW personnel investigated the problem and determined that the rig and casing were not in proper alignment upon initiation of probe driving and correction for the minor deviation was not attempted. Given the observed angle of deviation, calculations indicated that at total depth the probe tip was approximately 3 ft to 3.5 ft off-center to the south-southeast from the surface entry point. To ensure proper angle of penetration, proper alignment and rig stabilization are essential at the initiation of driving because this method does not currently allow for adjustments to drive direction, once started. Lessons learned from this effort will be applied by using engineered

changes to driving support equipment and additional personnel training prior to initiation of driving activities on the next probe hole of the series.

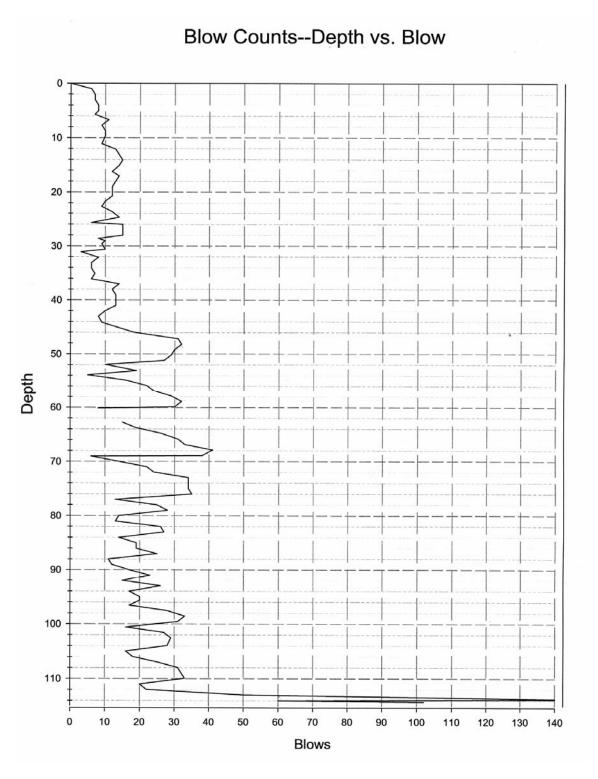
No problems with handling or making up the casing were encountered. Some minor problems with operation and maintenance of the wrench breakout and jack system were encountered, which affected crew efficiencies. These problems are being addressed with ongoing modifications to wrench slip designs, wrench tolerance adjustments, and modifications to backpulling slip and bowl designs and tolerances. It is expected that these changes will increase crew efficiencies and reduce rod trip times and handling issues. The casing was made up to manufacturer's torque specifications (5,000 ft•lb). Following removal of the casing from the borehole, the entire casing string was visually inspected. No damage to the casing, casing threads or tip and shoe was observed.

3.1.1 Casing Driving

To accomplish the objectives of acquiring samples the casing was driven in a closed configuration (e.g., removable tip in place) to the planned sample depths, and the tip and inner rod were then removed. A sampler was placed on the rods, inserted through the casing to total depth and the pile driver was utilized to drive the sampler ahead. Casing refusal is defined in the manual used by ICE operators. Refusal has been met when less than one inch of advance is gained for 10 full stroke blows of the hammer.

Blow counts vs. advancement of the casing were recorded and, as expected, varied over depth. Field records (blow counts recorded during driving of the casing to total depth) and Table E-1 of the blow counts recorded per length of casing advance are provided in Appendix E. Tracking and comparison of blow counts when utilizing this type of pile driver for engineering purposes is complicated by the fact that the hammer reacts to the resistance of the probe to advance. When little resistance is encountered, the hammer does not stroke to its full length and less than the maximum 40,000 ft•lb is applied at that point. When resistance to the advance of the probe increases, full hammer strokes occur and the full potential force of the hammer is used to advance the casing. Figure 3 is a graphic representation of the blow count vs. depth for C3832. At a depth (casing length) of 111.9 ft to 112.9 ft BGS the blow count increased from an average of 20-30 blows per foot to 50 blows per foot. This increased resistance to driving was interpreted as being the contact of the calcium carbonate rich facies of the Cold Creek with the overlying laminated silt facies of the Cold Creek. Subsequent sample examination places the contact between the two facies at 110.6 ft BGS. Casing refusal (blow counts in excess of 120 blows per foot) occurred at 113.77 ft. Attempts to open the hole and enable casing advance by sampling ahead of the probe and thus easing of sediment resistance failed. A sampler was advanced to a total depth of 115.89 ft, but casing advance beyond 114.24 ft was not achieved.

Figure 3. C3832 Blow Counts—Depth vs. Blow.



3.1.2 Split-Spoon Sampler

A split-spoon sampler with an additional inner steel liner for increased structural strength was specially designed for collecting sediment samples ahead of the driven casing. This sampler collects a 2.5-in. x 1-ft driven sample. The sampler body is designed to house the split liner and the sample liners. For this scope of work a sampler utilized in the SX-108 Project was redesigned to accommodate larger liners (2.5-in. vs. 2-in.) through removal of the lead shielding utilized for the previous deployment. Removing the shielding and increasing sample size were undertaken because of the lower expected contamination levels when compared to the previous deployment. This lower expected level of radioactive contamination allowed larger volumes of soil with less shielding to be safely handled at the surface in the field and at the laboratory. The sampler is deployed and advanced by use of an inner string of $4\frac{1}{2}$ -in. drill pipe.

Sample handling and any potential contaminate spread, as well as potential exposure of onsite personnel were minimized by capping the bottom of the split-spoon sampler, placing it in a transport container and using the remote-handling arm. The complete split-spoon assembly was placed in a transport drum and transported to Pacific Northwest National Laboratory with the sample intact in the split spoon. The laboratory performed the breakout of the samples from the split spoon and extruded the soil from the liners. No onsite breakdown of the samples was performed.

3.2 SAMPLING

3.2.1 Soil Sampling

During advancement of the borehole, sampling was attempted 19 times using a split-spoon sampler. The split spoon was driven by casing hammer a minimum of 1.25 ft into the bottom of the borehole at each selected sample location. The exact control of the driving distance for each sample has been proven to be problematic. Attempts have been made to restrict these distances to no more than 1.4 ft; however, due to the force produced by the casing hammer utilized to drive the sampler and the unknown properties of the sediments that are being sampled, this number was exceeded by as much as four tenths of a foot on at least one occasion and two to three tenths on several occasions. Overdriving of the sampler results in highly compacted materials in the sampler and causes difficulties for removal. Over compaction of samples alters physical properties of some portions of the sample by destroying sedimentary structures and porosity and rendering those portions of the sample unsuitable for density analysis. Chemical and radiologic analysis is not affected by the over compaction.

Projected target depths for sample collection were first outlined in the referenced RFI/CMS documentation (RPP-7578) prepared by CH2M HILL. Further refinement of the preferred sample depths was derived by performing moisture logging in 14 dry wells surrounding all of the proposed probe locations in the TX Farm. To accomplish the target refinement, cross section correlations of observable and identifiable geologic features were prepared from the logging data. These features were compared to the sample depths identified in the RFI/CMS (RPP-7578)

and with the approval of the CH2M HILL Project Lead, sampling targets based on projected geologic features (e.g., facies contacts, grain size changes, features such as tank excavation compaction zones) were selected and documented in DFSNW-DOW-006. Table 1 below provides information on targeted sample depths, actual sample depths, generalized geophysical log detections and sediment types for the interval and recovery percentages.

Table 1. Sample Depths.

Targeted from Moisture Log Review	TX-104 (C3832)	Log Detections/sediment	Recovery
Sample #/Depth in feet	1001.1701		
1) 15-16	16.21-17.61	moisture increase/backfill	100%
2) 28-29	28.09-29.49	moisture change/backfill	100%
3) 37-38	36.09-37.49	moisture decrease/backfill	100%
4) 44-45	44.14-45.54	moisture peak/backfill	100%
5) 52-53	51.18-52.58	moisture change/f sand (H)	100%
6) 53-54	53.08-54.43	moisture decrease/sand (H)	100%
7) 61-62	60.12-61.52	moisture (m) inc./med snd (H)	100%
8) 62-63	61.76-63.36	m peak-dec/silt-snd (H)	100%
9) 69-70	69.01-70.31	m peak/f-med sand-silt	100%
10) 76-77	75.99-77.39	Co-60-m peak/f-m sand-lam silt	100%
11) 79-80	78.29-80.31	Co60-dec m/lam silt-to c-m sand	100%
12) 83-84	82.99-84.34	Co60-inc m/m-c snd to vf snd-silt	100%
13) 87-88	86.99-88.41	dec Co60-dec m/m-c snd	100%
14) 93-94	92.99-94.4	Co60-dec m/m-c-vc snd	100%
15) 96-97	95.64-97.04	Co60-inc m/m-c snd	100%
16) 104-105	103.94-105.36	inc Co60-inc m/lam silt-vf snd	100%
17) 110-111	109.91-111.38	dec Co60-inc m,U238/pbl snd-cemt CaCO3	100%
18) 114-115	113.77-115.2	dec Co60-dec m/cemt CaCO3	100%
Unplanned	114.47-115.89	Co60-dec m/cemt CaCO3	100%
	Refusal		
19) 121-122			
20) 126-127			
21) 134-135			
22) 147-148			

Of the nineteen samples collected all 38 six-inch liners were 100% full on recovery. Because of the overdriving during several sampling events, the materials in the shoe and lower portion of the bottom liner were compacted, and thus were not appropriate for any laboratory-derived density studies. At the time of this report no detailed information relating to laboratory-derived soil moisture content, sample radiochemistry or chemical contamination is available. As related in the summary section, several samples were taken in zones that had notable physical and/or geophysical characteristics. Sample S02046-05 collected from 44.14 ft to 45.54 ft BGS displayed indications of excess or free water after sampling. Subsequent moisture logging indicated that the particular zone had between 12 and 13% volume moisture content, and when the sample was removed from the liner in the laboratory the sediments were described as very moist. The sediments were interpreted to be fine sands and silt from a compacted zone at the bottom of the tank excavation. Observation of the probe hole after sampling did not indicate that water content was at saturation levels for the interval, and as noted above neutron-moisture logging supported that information.

Field instrumentation detected elevated count rates in just one sample, SA02046-13 that was collected from 82.99 to 84.34 ft. BGS. The Geiger-Muller count rates were in a 250–300 cps range compared to an average of 200–250 cps as a background level in the TX farm. The elevated count rates on field instruments and subsequent HPGe logging have been identified as ⁶⁰Co contamination, and the high detections occurred at a grain size change in the sediments. In the sample interval a medium-to-coarse sand is in sharp contact with an underlying silt. Descriptions of the sediments retrieved in the 19 samples are found in Appendix B and Plate 1 (a graphic depiction of the geophysics, expected lithologies and retrieved samples with sample descriptions and formation contact depths).

3.3 GEOPHYSICAL LOGGING

Prior to the initiation of probe driving activities, open dry wells in the vicinity of the probe locations were reviewed for accessibility. Fifteen wells were selected for potential logging. See Figure 2 for the location of the wells selected (marked with tank farm well numbers, for example 51-04-05). Fourteen of the wells were subsequently logged by DFSNW with neutron-moisture instrumentation developed specifically for use at Hanford by DFSNW and analyzed for percent volume moisture content. Results of this logging scope (log plots, log data reports and analysis reports) are contained in Appendix C. Correlation cross-sections utilizing these logs were generated to select sample depths for the probe locations. Table 2 below lists the dry wells utilized for cross section correlation. Figure C-1 in Appendix C is a compiled cross section of the 14 logs acquired. Inspection of the moisture logging results revealed four wells (51-03-01, 51-03-11, 51-04-02 and 51-04-06) with anomalous readings in the 0 ft to 35 ft BGS zones of the boreholes. The moisture and spectral logging data from these four borings, as well as available construction information records, were reviewed to provide guidance in interpretation of the observed phenomena. The observed apparent moisture peaks are interpreted to be the result of cement grout introduced into the annular area of the boring during final completion of the wells. (See March 5, 2002, letter and attachments from Pacific Northwest Geophysics to Kent Reynolds in Appendix C for details.)

Table 2. Dry Wells Utilized for Cross-Section Correlation.

1.	51-00-07	8.	51-03-01
2.	51-04-06	9.	51-03-02
3.	51-04-05	10.	51-00-06
4.	51-03-09	11.	51-02-02
5.	51-04-02	12.	51-05-07
6.	51-03-11	13.	51-05-05
7.	51-03-12	14.	51-00-03

When C3832 probe reached refusal (total depth) the inner drill string and tip were removed and geophysical logging was conducted utilizing DFSNW equipment and personnel prior to decommissioning of the probe hole. Appendix C contains copies of the log plots, log data reports, analysis results, and interpretations generated from the probe hole (See log plots for C3832 in Appendix C). The following logging suites were utilized:

- 1. Gross gamma
- 2. Spectral (HPgE) gamma logging
- 3. Neutron-Moisture.

Analysis of the HPGe data detected ¹³⁷Cs within the top 1.15 ft of the probe hole and ⁶⁰Co as well as ²³⁸U below tank bottom levels. Cobalt detections began at approximately 76 ft BGS and continued to the total depth of probe advance. The highest concentration level of cobalt detected (1.2 pCi/g) occurred at 79.5 ft BGS and minor amounts were detected at up to .6 pCi/g at 92 ft and 106 ft BGS. Because of their interbedded silt and sand lithology, samples collected at 75.9 ft to 77.4 ft BGS and 78.3 ft to 80.3 ft BGS may contain useful information relating to soil adsorption potentials. Uranium-238 detections began at approximately 102 ft BGS and a peak concentration of 15 pCi/g was recorded at 106 ft BGS. A sample collected at 103.9 ft to 105.4 ft BGS was comprised of fine-to-very-fine sand and silt and is interpreted to be part of the Cold Creek silt sediments.

4.0 PROBE HOLE DECOMMISSIONING

Decommissioning of probe hole C3832 commenced on June 12, 2002, and was completed on June 13, 2002. Decommissioning activities met all applicable sections of WAC 173-160, "Minimum Standards for Construction and Maintenance of Wells," requirements. As the casing was extracted, dry bentonite materials were added to fill the annular space. Thirty nine (39) ft³ of materials (55.5 sacks) were placed into the probe hole as the casing was extracted. This volume slightly exceeds the minimal calculated volume (37.1 ft³) for filling the void space created by casing extraction. The probe hole was filled within approximately 1 ft of grade and covered with gravel to conform to tank farm requirements.

5.0 ENVIRONMENTAL, SAFETY, AND HEALTH

During the field operations, the job site was surveyed by both DFSNW Operations Safety and CH2M HILL Hanford Group, Inc., Tank Farm Industrial Hygiene and Safety personnel for safety and health compliance. To ensure compliance with hearing protection guidelines, noise levels were monitored during the probe driving operations. (See Appendix I for data relating to field monitoring and a subsequent transmittal letter to CH2M Hill Hanford Group, Inc., documenting the monitoring and results.) There were no lost time or reportable *Occupational*

Safety and Health Act of 1970 injuries during performance of the work activities relating to this scope of work. One first aid case was reported during completion of the scope of work. A subcontract worker onsite pinched a finger when rolling casing on the pipe racks and was transported to the 200 West First Aid Station. The injury was examined and the worker returned to work with no restrictions.

6.0 REFERENCES

- DFSNW-DOW-006, 2002, *Description of Work: Drilling and Sampling*, Rev. 0, Duratek Federal Services, Inc., Northwest Operations, Richland, Washington.
- DOE/RL-99-36, 1999, *Phase 1 RCRA Facility Investigation/Corrective Measures Study Work Plan for Single-Shell Tank Waste Management Areas*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- Occupational Safety and Health Act of 1970, 29 USC 651 et seq.
- RPP-6917, 2000, *SX-108 Slant Borehole Completion Report*, Rev. 0, prepared by Waste Management Technical Services for CH2M HILL Hanford Group, Inc., Single Shell Tank Farms Vadose Zone Program, Richland, Washington.
- RPP-7578, 2001, Site-Specific SST Phase 1 RFI/CMS Work Plan Addendum for WMAs T and TX-TY, Rev. 0, CH2M HILL Hanford Group, Inc., Richland, Washington.
- WAC 173-160, "Minimum Standards for Construction and Maintenance of Wells," *Washington Administrative Code*, as amended.

APPENDIX A FIELD ACTIVITY REPORTS

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DRILLIN	NG AND	SAMPL	ING (PE)	RCUS	SSION) D	AILY	V	ORK REC	CORD	Page 1 of 1
WELL I.D.:	C3832		WELL NUM	IBER:	N/A		RI	EPORT NUMBI	ER: 01	DATE: April 29, 2002 Monday
CONTRACT	NUMBER	: 8248-55		START CARD NO: S00630 RIG MODEL						NO: SIMCO 5000 (Rig 106)
PURPOSE: F	Radiologica	l pre-survey	and mobilizat	ion to T	X Tank Farr	n. RI Re	W-DOW-006,	LOCATION: TX Tank Farm, 200 West		
REFERENCI	E MEASUF	RING POINT	: Steel Plate			0.0 ft.				
CONSTRU	CTION D	ESCRIPTIO	ON: N/A					BORING DE	7 777	START TIME: 0700
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE PO		START DEPTH	END DEPT	100	START: 0.0 END: 0.0 ft	it	END TIME: 1630 CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	0.0 ft	0.0 ft				
ODC FOR S	SUBCON		depth = 0.0 om of 7 " Ol		PERSONNEL: OPERATOR: KC Olson DL Curry/DE Morris					
WEATHER N/A	Casin	om of 7 " On ng (7in OD) and to top of	stick u	WA LICENSE #: 1217 OTHER: D Skoglie K Johnson H Sydnor Sharp (Optr) (HPT) R. Steffler/K. Young/F, Hall						
										K. Reynolds/K. Flower
FROM	TO				DESCRIP	PTION	OF	OPERATION	S/REMARKS	
		On April 2 200 W. A	5 (PM) the or radiological	lrill un pre-su	it and supported in the support of t	ort equip	pme	ent was staged I on Monday.	at the Conoco	fuel station between 200 E and
		The radiolo Farm stagin		rvey w	as complete	ed and t	the	drill unit and s	upport equipn	ent mobilized to the TX Tank
		_								
		_								
							_			
							_			
	-									
							-			
REPORT B'		2	11 1			TI	TLE	EWED BY: M E: Project Mar ATURE:	nager	DATE: 8-13-02

DRILL	ING ANI	SAMPL	ING (PE	RCUS	SSION) D	AILY	W	ORK REC	ORD	Page 1 of 1
WELL I.I	D.: C3832		WELL NUN	BER:	N/A		RE	PORT NUMBE	ER: 02	DATE: April 30, 2002 Tuesday
CONTRA	CT NUMBE	R: 8248-55		STAF	RT CARD N	NO: SIMCO 5000 (Rig 106)				
PURPOSI	E: Ground sur	vey and mobi	lize drill unit	into Ta	nk Farm	W-DOW-006,	LOCATION: TX Tank Farm, 200 West			
REFEREN	NCE MEASU	RING POINT	: Steel Plate			0.0 ft.				
CONSTR	RUCTION D	ESCRIPTIO	ON: N/A			START TIME: 0700				
CASING	SET- AT DEPTH	TYPE CASING	DRIVE PO							END TIME: 1630 CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	0.0 ft	0.0 ft				
NA	R SUBCON	Botto Casir	depth = 0.0 m of 7 " Of om of 7 " Of on of 7 " Of on of 7 " Of on of 7 m of	D casing D casing stick u	PERSONNEL: OPERATOR: KC Olson DL Curry/DE Morris WA LICENSE #: 1217 OTHER: D Skoglie K Johnson H Sydnor Sharp (Optr) (HPT) R. Steffler/K. Young/F. Hall K. Reynolds/K. Flower					
TI	ME				DEGGD.		0.0	00000		
FROM	TO				DESCRI	PTION	OF	OPERATION	S/REMARKS	
07:00	08:15			5						
08:15	09:00	Daily safet	y meeting.	No que	stions or sa	fety cor	ncer	ns.		
09:00	09:30									
09:30	11:00	Health Physics arrives to conduct ground survey. Ground survey complete @ The borehole location was leveled for the steel plate. 20 wide (plastic) was p matting was also placed on the ground. A steel plate (3 inch thick) 4 ft x 4 ft location.								
11:00	11:30	Lunch								
11:30	13:00							of the drill un		
13:00	14:30							arm. The drill ne HPT leaves		and the outriggers set. ecured.
14:30	16:30	BSE person	nnel pickup	require	d parts and	conduc	t co	ntract requirer	ment training o	on forms.
							_			
						_	_			
	BY: DE Sk Field Team J URE:		// /.			TI	TLE	EWED BY: M E: Project Mar		PATE: 8-13-02

DRILL	ING AND	SAMPL	ING (PE)	RCUS	SSION) E	AILY	V	VORK REC	ORD	Page 1 of 1
WELL I.D	: C3832		WELL NUM	IBER:	N/A		RI	EPORT NUMBE	ER: 03	DATE: May 01, 2002 Wednesday
CONTRAC	CT NUMBER	R: 8248-55		STA	RT CARD N	O: S006	RIG MODEL	/NO: SIMCO 5000 (Rig 106)		
PURPOSE	: Daily Safet	y meeting and	l realignment	of drill	•	100000	EFE ev. 0	RENCE: DFSN	W-DOW-006,	LOCATION: TX Tank Farm, 200 West
REFEREN	CE MEASU	RING POINT	: Steel Plate					TOTAL SHIFT		
CONSTR	UCTION D	ESCRIPTIO	ON: N/A					BORING DE		START TIME: 0700 END TIME: 1630
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE PO	ION	START DEPTH	END DEPT		START: 0.0 END: 0.0 ft	π	CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	0.0 ft	0.0 ft				
DOC	,c=01,	DOWN TI	ME		depth = 0.	0 ft		MMARY		PERSONNEL: OPERATOR: KC Olson
	N/A							tart of shift) =		DL Curry/DE Morris
NATE & COLLEGE	n corner	TONIO (255	2710		om of 7 " O l casing (en			end of shift) =	0.0 ft	WA LICENSE #: 1217
WEATH	K CONDIT	TONS (373	-2716)					end of shift) =	0.0 ft	OTHER: D Skoglie
10:30 hrs:	SE 6 gusts	to 11 mph;	67 F; 40%		ind to top of				0.0 10	K Johnson H Sydnor
		netric pressi						SUMARY		Sharp (Optr) K. Hartielius (HPT)
										R. Steffler/K. Young/F. Hall
						1	N/A	<u>.</u>		K. Reynolds/K. Flower
TII	200 9 TO 1 C.				DESCRI	PTION	OF	OPERATION	S/REMARKS	
FROM	TO									
07:00	07:15		with drill ci							
07:15	07:25		ily safety m							1201 - 0121 121 - 021 2
07:25	09:00	changed or	the drill un	it's jac	ks. Blockir	ng was	cut	for the hydraul	ic jacks.	place. A hydraulic hose was
09:00	10:00	casing/pipe	staged.						500	were set in place and
10:00	11:40	11:00 Mr. I	Dave Curry e took 5 and	had a p I said b	oain in his n ne was all-ri	eck (ba	ck o	of neck both sid	des). Dave wa	as pulling on the screw jack
			Skoglie co				ces	sfully. A toe b	oard will be p	out in place in front of the
11:40	12:20	Lunch								
12:20	12:40	Deck traini	ng was cond	lucted	for a majori	ity of or	nsite	e personnel.		
12:40						-		-	o through up	per plate on jacks.
	15:30		pment for d							Julian
15:30	16:30		ed. Comple							
			•							
REPORT	BY: DE Ske	Alie .	f. Shog			RF	EVI	EWED BY: M	G Gardner	
		PT				126.000		E: Project Mar		DATE: 8-13-02

CONTRACT NUMBER: 8248-55 PURPOSE: Pre-Job Safety meeting and initiate drilling; realignment of drill. Equipment blank \$02046-01 REFERENCE: DFSNW-DOW-006, 200 West Table Type District Description and initiate drilling; realignment of drilling. Presenting the hydrouside properties of the present plank \$02046-01 REFERENCE: DFSNW-DOW-006, 200 West Table Type District Description Type District Description Type De	DRILL	ING ANI	SAMPI	ING (PE	RCUS	SSION) I	AILY	w	ORK REC	ORD	Page 1 of 1	l
CONTRACT NUMBER: 8248-55 START CARD NO: S00630 RIG MODELNO: SIMCO 500 PURPOSE: Pre-Job Safety meeting and initiate drilling; realignment of dri	WELL I.D	.: C3832		WELL NUM	MBER:	N/A		REP	PORT NUMBE	ER: 04	DATE: May 02, 20	002 Thursday
drill. Equipment blank S02046-01 REFERENCE MEASURING POINT: Steel Plate CASING SET- AT TYPE AT CASING DIMENSION DEPTH DEPTH CASING DIMENSION DEPTH DEPTH DEPTH DEPTH DEPTH CASING AT CASING DIMENSION DEPTH DEPTH DEPTH DEPTH DEPTH CASING AT CASING DIMENSION DEPTH	CONTRAC	CT NUMBER	R: 8248-55		STAF	RT CARD N	O: S0063	30		RIG MODEL		
CONSTRUCTION DESCRIPTION: CASING SETAT TYPE DRIVE POINT DIMENSION DEPTH DEPTH DEPTH CASING DIMENSION DEPTH DEPTH DEPTH DEPTH DEPTH DEPTH CASING DIMENSION DEPTH D	PURPOSE drill. Equi	: Pre-Job Saf pment blank	ety meeting a S02046-01	and initiate dr							LOCATION: TX T 200 West	ank Farm,
CASING SIZE DIPTH TYPE DRIVE POINT START END DEPTH DEPTH CASING DIMENSION DEPTH DEPTH END: 6.81 ft CONTRACTOR TOTAL TIME: 16.00 ft CONTRACTOR DIMENSION DEPTH DEPTH DEPTH END: 6.81 ft CONTRACTOR DIMENSION DEPTH DEPTH END: 6.81 ft CONTRACTOR DEPTH DEPTH END: 6.81 ft CONTRACTOR DEPTH DEPTH END: 6.81 ft CONTRACTOR DEPTH DEPTH END: 6.81 ft DEPTH DEPTH DEPTH DEPTH END: 6.81 ft DEPTH DEPTH DEPTH DEPTH DEPTH DEPTH DEPTH END: 6.81 ft DEPTH	REFEREN	CE MEASU	RING POIN	T: Steel Plate				1	TOTAL SHIFT	FOOTAGE:	6.81 ft.	
CASING SIZE DEPTH CASING DIMENSION DEPTH DEPTH DEPTH DEPTH TOTAL TIME: TO "OD NA CS Shoe, 7.5" OD 0.0 ft 6.81 ft END: 6.81 ft CASING DIMENSION DIMENSION DEPTH DE	CONSTR		ESCRIPTION	ON:							START TIME: 070	00
DOCUMENTED DOWN TIME N/A Bottom of 7 " OD casing (start of shift) = 0.0 ft Bottom of 7 " OD casing (start of shift) = 0.0 ft Bottom of 7 " OD casing (end of shift) = 0.11 ft Ground to top of work deck = 3.5 ft Total casing = 10.42 ft SAMPLE SUMMARY Equipment blank sample (S02046-01) @ 12.05. TIME FROM TO 07:00 08:00 Equipment daily inspection was completed. A hydraulic end cap was rotated 90 degrees to allow head to move without rubbing the hydraulic components. DESCRIPTION OF OPERATIONS/REMAKS DESCRIPTION OF OPERATIONS/REMAKS DESCRIPTION OF OPERATIONS/REMAKS TIME Tank Farm Technical Safety Evaluation (TSE) is being conducted on the work package. Drilling started until the TSE is approved. The hammer was set-up and the curtain was placed around the weekly safety meeting. The TSE was approved and work can start. A pre-job briefing was held. This initial pre-job will the weekly safety meeting. The TSE was approved and the deck training previously are currently conducting deck training. Ar blank was taken by Young and Hall. The hammer was primed and the casing drove to a depth of 6.81 ft bgs 10.42 – (3.5 + 0.11). Blos 6/7/17/8/8/7/11. The casing is out of align. The casing was pulled out of the ground and realigned. NOTE 1: Mr. Curry states his neck is feeling better.		AT	The second of the second of the second					D			CONTRACTOR T TOTAL TIME: 9.5	40 5 B) 5 B) 5 B) 6 B) 1 B (6)
WEATHER CONDITIONS (373-2716) WEATHER CONDITIONS (373-2716) 10:30 hrs: SE 6 mph, gusts 11 mph; 67 F; humidity 40 %; barometric pressure 29:02; forecast ~2pm gusts 30-40 mph. DESCRIPTION OF OPERATIONS/REMARKS TIME FROM TO 07:00 08:00 Equipment daily inspection was completed. A hydraulic end cap was rotated 90 degrees to allow head to move without rubbing the hydraulic components. DESCRIPTION OF OPERATIONS/REMARKS 08:00 10:00 Tank Farm Technical Safety Evaluation (TSE) is being conducted on the work package. Drilling started until the TSE is approved. The hammer was set-up and the curtain was placed around the weekly safety meeting. 11:53 12:10 Personnel who had not taken deck training previously are currently conducting deck training. Are blank was taken by Young and Hall. The hammer was primed and the casing drove to a depth of 6.81 ft bgs 10.42 – (3.5 + 0.11). Blor 6/77/8/8/7/11. 12:18 14:20 The casing is out of align. The casing was pulled out of the ground and realigned. NOTE 1: Mr. Curry states his neck is feeling better.	7.0 " OD	NA	CS	Shoe, 7.5 "	OD	0.0 ft	6.81 ft	_				
WEATHER CONDITIONS (373-2716) WEATHER CONDITIONS (373-2716) WEATHER CONDITIONS (373-2716) WEATHER CONDITIONS (373-2716) 10:30 hrs: SE 6 mph, gusts 11 mph; Ground to top of work deck = 3.5 ft Total casing = 10.42 ft SAMPLE SUMMARY Equipment blank sample (S02046-01) @ 12:05. TIME FROM TO 07:00 08:00 Equipment daily inspection was completed. A hydraulic end cap was rotated 90 degrees to allow head to move without rubbing the hydraulic components. DESCRIPTION OF OPERATIONS/REMARKS DESCRIPTION OF OPERATIONS/REMARKS DESCRIPTION OF OPERATIONS/REMARKS 10:30 10:00 10:00 Tank Farm Technical Safety Evaluation (TSE) is being conducted on the work package. Drilling started until the TSE is approved. The hammer was set-up and the curtain was placed around the the weekly safety meeting. 11:53 12:10 Personnel who had not taken deck training previously are currently conducting deck training. Ar blank was taken by Young and Hall. The hammer was primed and the casing drove to a depth of 6.81 ft bgs 10.42 – (3.5 + 0.11). Bloe 6/77/8/8/7/11. 12:18 14:20 The casing is out of align. The casing was pulled out of the ground and realigned. NOTE 1: Mr. Curry states his neck is feeling better.	DOC	UMENTED	DOWN TI	ME			LOG S	SUM	IMARY		PERSONNEL:	
WEATHER CONDITIONS (373-2716) WEATHER CONDITIONS (373-2716) 10:30 hrs: SE 6 mph, gusts 11 mph; 67 F; humidity 40 %; barometric pressure 29.02; forecast ~2pm gusts 30-40 mph. DESCRIPTION OF OPERATIONS/REMARKS 10:00 10:00 Tank Farm Technical Safety Evaluation (TSE) is being conducted on the work package. Drilling started until the TSE is approved. The hammer was set-up and the curtain was placed around the weekly safety meeting. 11:53 12:10 Personnel who had not taken deck training previously are currently conducting deck training. Ar blank was taken by Young and Hall. 12:18 14:20 The casing is out of align. The casing was pulled out of the ground and realigned. NOTE 1: Mr. Curry states his neck is feeling better.		N//			Potto	m of 7 " O	D againg	- (ata	mt of altifo\ —	000	OPERATOR: KC OIS	on
WEATHER CONDITIONS (373-2716) 10:30 hrs: SE 6 mph, gusts 11 mph; 6.67 F; humidity 40 %; barometric pressure 29.02; forecast ~2pm gusts 30-40 mph. TIME FROM TO 07:00 08:00 Equipment daily inspection was completed. A hydraulic end cap was rotated 90 degrees to allow head to move without rubbing the hydraulic components. Begin the Test and the Test is approved. The hammer was set-up and the curtain was placed around the weekly safety meeting. 10:35 11:53 The TSE was approved and work can start. A pre-job briefing was held. This initial pre-job will the weekly safety meeting. 12:10 12:18 The hammer was primed and the casing drove to a depth of 6.81 ft bgs 10.42 – (3.5 + 0.11). Blor 6/17/18/87/11. Casing (7 in OD) stick up (end of shift) = 0.11 ft Ground to top of work deck = 3.5 ft Total casing = 10.42 ft To		18/2	`								DL Curry/DE Morris	
10:30 hrs: SE 6 mph, gusts 11 mph; 10:42 ft 10:42 ft 10:42 ft 10:40	WEATHE	R CONDIT	IONS (373	-2716)								7
Total casing = 10.42 ft SAMPLE SUMMARY Equipment blank sample (S02046-01) @ 12:05. Sharp (Optr) K Hartelius (HPT R. Steffler/K. You K. Reynolds/K.		Ground to top of work deck =							= 3.5 ft			-
Equipment blank sample (\$02046-01) @ 12:05. Equipment blank sample (\$02046-01) @ 12:05. R Hartelius (HPT R. Steffler/K. You K. Reynolds/K.					Total						1.50	•
TIME FROM TO 08:00 Equipment daily inspection was completed. A hydraulic end cap was rotated 90 degrees to allow head to move without rubbing the hydraulic components. 08:00 10:00 Tank Farm Technical Safety Evaluation (TSE) is being conducted on the work package. Drilling started until the TSE is approved. The hammer was set-up and the curtain was placed around the 10:00 10:35 An early lunch was taken. The TSE may be ready after lunch. 10:35 11:53 The TSE was approved and work can start. A pre-job briefing was held. This initial pre-job will the weekly safety meeting. 10:10 Personnel who had not taken deck training previously are currently conducting deck training. Ar blank was taken by Young and Hall. 10:10 12:18 The hammer was primed and the casing drove to a depth of 6.81 ft bgs 10.42 – (3.5 + 0.11). Blow 6/7/7/8/8/7/11. 10:12 18 14:20 The casing is out of align. The casing was pulled out of the ground and realigned. 15:30 The wind has picked up to >20 mph (14:30). The Tank Farm is shut dowm. The rig and associat has been placed in a safe configuration. Personnel exit the farm. NOTE 1: Mr. Curry states his neck is feeling better.					Fanis					12.05	K Hartelius (HPT)	
TIME FROM TO 07:00 08:00 Equipment daily inspection was completed. A hydraulic end cap was rotated 90 degrees to allow head to move without rubbing the hydraulic components. 10:00 Tank Farm Technical Safety Evaluation (TSE) is being conducted on the work package. Drilling started until the TSE is approved. The hammer was set-up and the curtain was placed around the locol 10:35 An early lunch was taken. The TSE may be ready after lunch. 11:53 The TSE was approved and work can start. A pre-job briefing was held. This initial pre-job will the weekly safety meeting. 11:53 Personnel who had not taken deck training previously are currently conducting deck training. And blank was taken by Young and Hall. 12:10 Personnel who had not taken deck training previously are currently conducting deck training. And blank was taken by Young and Hall. 12:18 The hammer was primed and the casing drove to a depth of 6.81 ft bgs 10.42 – (3.5 + 0.11). Blow 6/7/7/8/8/7/11. 15:30 The casing is out of align. The casing was pulled out of the ground and realigned. 16:30 The wind has picked up to >20 mph (14:30). The Tank Farm is shut dowm. The rig and associated has been placed in a safe configuration. Personnel exit the farm. NOTE 1: Mr. Curry states his neck is feeling better.					Equi	onient orani	k sample	(30.	2040-01) @	12:05.	R. Steffler/K. Young/I	
DESCRIPTION OF OPERATIONS/REMARKS 10:00 08:00 Equipment daily inspection was completed. A hydraulic end cap was rotated 90 degrees to allow head to move without rubbing the hydraulic components. 10:00 Tank Farm Technical Safety Evaluation (TSE) is being conducted on the work package. Drilling started until the TSE is approved. The hammer was set-up and the curtain was placed around the 10:00 10:35 An early lunch was taken. The TSE may be ready after lunch. 11:53 The TSE was approved and work can start. A pre-job briefing was held. This initial pre-job will the weekly safety meeting. 12:10 Personnel who had not taken deck training previously are currently conducting deck training. Are blank was taken by Young and Hall. 12:11 The hammer was primed and the casing drove to a depth of 6.81 ft bgs 10.42 – (3.5 + 0.11). Blow 6/7/7/8/8/7/11. 12:18 14:20 The casing is out of align. The casing was pulled out of the ground and realigned. 15:30 The wind has picked up to >20 mph (14:30). The Tank Farm is shut down. The rig and associated has been placed in a safe configuration. Personnel exit the farm. NOTE 1: Mr. Curry states his neck is feeling better.	TIA	/E									K. Reynolds/K. Flo	wer
10:00 Description Descriptio						DESCRI	PTION C	OF O	PERATION	S/REMARKS	Ē	
Tank Farm Technical Safety Evaluation (TSE) is being conducted on the work package. Drilling started until the TSE is approved. The hammer was set-up and the curtain was placed around the 10:00 10:35 An early lunch was taken. The TSE may be ready after lunch. The TSE was approved and work can start. A pre-job briefing was held. This initial pre-job will the weekly safety meeting. Personnel who had not taken deck training previously are currently conducting deck training. Ar blank was taken by Young and Hall. The hammer was primed and the casing drove to a depth of 6.81 ft bgs 10.42 – (3.5 + 0.11). Blos 6/7/7/8/8/7/11. The casing is out of align. The casing was pulled out of the ground and realigned. The wind has picked up to >20 mph (14:30). The Tank Farm is shut dowm. The rig and associat has been placed in a safe configuration. Personnel exit the farm. NOTE 1: Mr. Curry states his neck is feeling better.			Equipment head to mo	daily inspec	ction w	as complete the hydrau	ed. A hy	ydrau	ılic end cap v	vas rotated 90	degrees to allow th	e floating
10:35 An early lunch was taken. The TSE may be ready after lunch. 10:35 11:53 The TSE was approved and work can start. A pre-job briefing was held. This initial pre-job will the weekly safety meeting. 11:53 12:10 Personnel who had not taken deck training previously are currently conducting deck training. An blank was taken by Young and Hall. 12:10 12:18 The hammer was primed and the casing drove to a depth of 6.81 ft bgs 10.42 – (3.5 + 0.11). Blow 6/7/7/8/8/7/11. 12:18 14:20 The casing is out of align. The casing was pulled out of the ground and realigned. 14:20 The wind has picked up to >20 mph (14:30). The Tank Farm is shut dowm. The rig and associate has been placed in a safe configuration. Personnel exit the farm. NOTE 1: Mr. Curry states his neck is feeling better.	08:00	10:00	Tank Farm started unt	Technical S	Safety E	Evaluation (red. The ha	(TSE) is	bein	g conducted et-up and the	on the work p	ackage. Drilling ca	nnot be
the weekly safety meeting. 11:53 12:10 Personnel who had not taken deck training previously are currently conducting deck training. An blank was taken by Young and Hall. 12:10 12:18 The hammer was primed and the casing drove to a depth of 6.81 ft bgs 10.42 – (3.5 + 0.11). Blow 6/7/7/8/8/7/11. 12:18 14:20 The casing is out of align. The casing was pulled out of the ground and realigned. 14:20 The wind has picked up to >20 mph (14:30). The Tank Farm is shut dowm. The rig and associate has been placed in a safe configuration. Personnel exit the farm. NOTE 1: Mr. Curry states his neck is feeling better.	10:00	10:35								•	-	
blank was taken by Young and Hall. 12:10 12:18 The hammer was primed and the casing drove to a depth of 6.81 ft bgs 10.42 – (3.5 + 0.11). Blow 6/7/7/8/8/7/11. 12:18 14:20 The casing is out of align. The casing was pulled out of the ground and realigned. 14:20 15:30 The wind has picked up to >20 mph (14:30). The Tank Farm is shut dowm. The rig and associate has been placed in a safe configuration. Personnel exit the farm. NOTE 1: Mr. Curry states his neck is feeling better.	10:35	11:53	the weekly	safety meet	ing.							
12:18 The hammer was primed and the casing drove to a depth of 6.81 ft bgs 10.42 – (3.5 + 0.11). Blow 6/7/7/8/8/7/11. 12:18 14:20 The casing is out of align. The casing was pulled out of the ground and realigned. 15:30 The wind has picked up to >20 mph (14:30). The Tank Farm is shut dowm. The rig and associate has been placed in a safe configuration. Personnel exit the farm. NOTE 1: Mr. Curry states his neck is feeling better.	11:53	12:10	Personnel blank was	who had not taken by Yo	taken d	leck trainin I Hall.	g previo	usly	are currently	conducting d	eck training. An ec	luipment
14:20 15:30 The wind has picked up to >20 mph (14:30). The Tank Farm is shut dowm. The rig and associat has been placed in a safe configuration. Personnel exit the farm. NOTE 1: Mr. Curry states his neck is feeling better.	12:10	2242.8	6/7/7/8/8/7	/11.				_				ount
has been placed in a safe configuration. Personnel exit the farm. NOTE 1: Mr. Curry states his neck is feeling better.	2:18	14:20	The casing	is out of ali	gn. The	e casing wa	s pulled	out	of the ground	and realigne	d.	
	4:20	15:30	The wind has been pl	as picked up aced in a sa	to >20 fe confi	mph (14:3 guration. I	30). The Personne	Tan el exi	nk Farm is shi it the farm.	it dowm. The	e rig and associated	equipment
			NOTE 1: 1	Mr. Curry sta	ates his	neck is fee	ling bett	ter.				
REPORT BY: DE Skoglie REVIEWED BY: MG Gardner							REV	VIEV	WED BY: M	G Gardner		
TITLE: Field Team Lead TITLE: Project Manager DATE: 8-1 SIGNATURE: Melanum SIGNATUR	TITLE: Fi	ield Team L	gad c	11 1.			TIT	LE:	Project Man	ager	DATE: 8-13-	2

DRILL	ING AND	SAMPL	ING (PE	RCUS	SSION) D	AILY	W	ORK REC	CORD	Page 1 of 2
WELL I.D.	: C3832	9	WELL NUM	IBER:	N/A		REP	ORT NUMBI	ER: 05	DATE: May 03, 2002 Friday
CONTRAC	T NUMBER	: 8248-55		STAI	RT CARD N	O: S0063	30		RIG MODEL	/NO: SIMCO 5000 (Rig 106)
PURPOSE: jacks. Driv		meeting and	l realignment	nent of drill/hydraulic REFERENCE: DFSNW-DOW-006, Rev. 0						LOCATION: TX Tank Farm, 200 West
REFEREN	CE MEASUI	RING POINT	: Steel Plate			10.8 ft.				
CONSTR		ESCRIPTIO	ON:				999	BORING DE START: 6.81		START TIME: 0700 END TIME: 1530
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE PO		START DEPTH	END DEPTI	2	END: 17.61		CONTRACTOR TIME: 0.5 TOTAL TIME: 8.5
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	6.81 ft	15.96 1	ft			
DOC	DOCUMENTED DOWN TIME LOG SUMMARY									PERSONNEL:
	N/A Bottom of 7" OD casing (start of shift) = 6.81 ft								C 01 A	OPERATOR: KC Olson
	N/A Bottom of 7 "OD casing (start of shift) = 6.81 ft. Bottom of 7 "OD casing (end of shift) = 15.96 ft. Casing (7 in OD) stick up (end of shift) = 1.05 ft.									DL Curry/DE Morris
WEATHE										WA LICENSE #: 1217
" LATHE	Total casing = 20.41 ft								OTHER: D Skoglie K Johnson H Sydnor	
		21mph; 52 F				MPLE S				Sharp (Optr)
		netric pressu	out the day.	S020)46-02 (16.2	21 to 17.	.61ft	[#1]) @ 15:3	34	Jeff (HPT)
iorccast w	ma commu	es unougn-c	out the day.							R. Steffler/K. Young/F. Hall
1155.65	3525									K. Reynolds/K. Flower
FROM	TO				DESCRI	PTION (OF C	PERATION	S/REMARKS	3
07:00	07:10	Equipment	daily inspec	ction w	as complete	ed. Con	duct	Daily Safety	meeting. No	questions or concerns noted.
07:10	08:25	Mr. Flower		the dri	ll mast will	not alig	n wit	th the hydrau		; jacks were rotated 90 degree
08:25	08:42	The grating	g was cut to	fit the	access hole	s. The p	ipe w	vas readied fe	or driving. Hy	ydraulic jacks are chained dov
08:42	08:56	Check alig	nment with	hamme	er in positio	n. Aligi	nmen	nt is good.		
08:56	09:30	Drive pipe	, minimal di	stances	s (1 – 3 stro	kes at a	time)) and checking	ng pipe plum.	
09:30	10:14	Adding cas	sing/pipe. C	asing 5	5.0/Dp 5.01	ft. Tota	al cas	sing 10.42 +	5.0 = 15.42 ft.	
10:14	10:23	Drive casir	ng, stick-up	0.93 ft.	15.42 – 4.3	33 (su) =	= 11.0	09 ft bgs. Bl	ow count 9/10	0/10/9.
10:23	11:13	Pickup 4.9	9 casing and	5.0 dr	ill pipe. To	tal casir	ng 15	5.42 + 4.99 =	20.41 ft.	
11:13	11:20		Pickup 4.99 casing and 5.0 drill pipe. Total casing $15.42 + 4.99 = 20.41$ ft. Drive casing. SU = 0.8 ft. $20.41 - 4.2 = 16.21$ ft bgs. Blow count $13/14/15/14/12$. Bacasing @ 15.96 ft bgs).							
11:20	11:55	lunch								
11:55	13:30		Farm Servi ecated and re		trical system s	short (manipulator arm shut o				
13:30	14:32	Trip out D	p. Trip in th	e samp	oler.					
14:33	14:34	Drive samp	oler 16.21 –	17.61	ft. (1.4 ft).	Blow co	ount 2	2/2/3.		
14:34	15:34	Sampler pl	aced in drun	n @ 15	5:34 hrs. Sa	mple tra	anspo	orted to PNN	L laboratory.	
		Site secure	d.							
		121								
REPORT	BY: DE Sk	oglie ,	1			30277	ST CATONS	WED BY: M		
-						TITLE: Project Manager DATE:				
TITLE: F SIGNATU	ield Team I	ead]	- // -					: Project Ma TURE:		DATE:

Duratek Duratek Federal Services, Inc., Northwest Operations FAR No. 5 Page Z of 2 SAMPLE FORM Sample Tracking No. 02 Sample No. 502046 Target Depth 15 to (1) 3.4 top of rig floor above ground (2) 4.2 casing stickup above ground Csg Total (3) 20.41 - Stickup (2) 4.2 = TD (4) 16.21 Does not include drive head 4.79 Backpull stickup (2+5) 16.21 Sample depth (4) to (4+6) Ground Level Blow Count 1.4 PT Det 1000 .5 ft 1 ft 1.5 ft Start Time 2 3 1433 End Time 1433 Estimated Recovery: Full (3) 20.41 Remarks: (4) 16.21 1) Sample in bbl @ 15134 hrs. 2) SAMPLE SOZOUL -OI is An Equipment blank taken may 02, 2002 @ 12:05 hrs. 3) WORK PLAN SAmple number 1. (7) 17,61 1 = Top of rig floor above ground 2 = Stickup of csg above ground 1 + measure from floor to top csg = SU3 = Total csg length 4 = Depth of csg = Total Depth (TD)Total csg $- SU^{(2)} = TD$ 5 = Casing back pull 6 = Sampler drive distance 7 = Total depth of driven sample = 4 + 6REVIEWED BY (Please print): MG GARSNER PREPARED BY (Please print): 1 5/03/02 TITLE: Marager DATE: TITLE: SIGNATURE: Moland SIGNATURE:

A-6

DFSNW-WS-00

8-13-02

DRILL	ING AND	SAMPL	ING (PE	RCUS	SSION) D	AILY	WORK R	ECORD	Page 1 of 1		
WELL I.D	.: C3832		WELL NUM	IBER:			REPORT NUM	1BER: 06	DATE: May 06, 2002 Monday		
CONTRAC	CT NUMBER	: 8248-55		STAF	RT CARD N	O: S0063	L/NO: SIMCO 5000 (Rig 106)				
	: Daily Pre-Jo 28'. Drill ma			ince cas	sing, sample	RE Re	, LOCATION: TX Tank Farm, 200 West				
REFEREN	CE MEASUR	ING POINT	: Steel Plate				TOTAL SE				
CONSTR	UCTION D	ESCRIPTIO	N:				BORING	START TIME: 0700			
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE PO		START DEPTH	END DEPTI			END TIME: 1630 CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5		
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	15.96 ft	26.02 1					
DO	CUMENTE	DOWN T	IME			LOG	SUMMARY		PERSONNEL:		
				Botto	om of 7 "OI	D casing	(start of shift	= 15.96 ft	OPERATOR: KC Olson		
	N/A	e					(end of shift)		DL Curry/DE Morris		
						-	p (end of shift	-	WA LICENSE #: 1217		
WEATH	ER CONDIT	IONS (373.	.2716)	Total		-	(constant 3.4 E SUMMARY		OTHER:		
N/A						N/			K Johnson H Sydnor Snook and Sharp (Optr) K Hartelius (HPT) S.H. Worley, K.D. Reynolds, K. Flower		
TIME DESCRI							OF OPERAT	ONS/REMARI	KS		
07:30	08:00	POD – Sa	mple hold ti	mes, L	eave sample	e loadin	g arm resting	on safe place w	hile not in use.		
08:15	08:30	Worley A	ced in (Mus	be eso	corted, has i	not turn	ed in 3 day su	ervisor training	g.)		
08:54	09:10	Added 4.9	8' with arm	. Flow	er reviews	deck sat	ety with Worl	ey.			
09:34		Changed	18" sub to 1	sub so	drive head	would	reach over the	string. Reynol	ds marks casing in ft increments		
09:56		chain. Ga	ve up chain	oulling	operation.	in could	be attached to	pull string stra	ight. No attachment to fasten		
10:08		1 - 12 20	Sweeney arr	7, - 11 to 11 to 1	enterior to the territoria						
10:14	10:16		LICAS CLIPS						2. Set next 5 ft set of casings.		
10:42									counts 10/9/12/14/6/15.		
11:00	11:11	•		(.97+3	(.4) = 26.02) Set Ha	ammer. Broke	n Hydraulic line	e. Attempt to find problem line.		
11:15	12.10	Rig Repai		ъ.							
11:45	12:19		m for Lunc		in farm to	review	problems				
12:19			r assesment.		-L D 1 1						
1:00		Note: Pro	rived waitin	e is a h	ydraulic lin	obush the line that wraps under the hoisting gear/chain. The hydraulic line work we line rerouted to remove the potential wear point.					
1:56	3:30	-						Area Secured			
-1515							repairs	Secured			
REPORT	BY: S.H. W	orlev				RF	VIEWED BY	: MG Gardner			
						0,000,000			D. (TD)		
TITLE: F	JRE:	ead				111	LE: Project	Manager .	DATE: 8-13-02		

DRILL	ING AND	SAMPL	ING (PE	RCUS	SSION) D	AILY	W	ORK REC	ORD	Page 1 of 2
WELL I.D	.: C3832		WELL NUM	BER:	N/A		RE	PORT NUMBE	ER: 07	DATE: May 07, 2002 Tuesda
CONTRAC	CT NUMBER	: 8248-55								NO: SIMCO 5000 (Rig 106)
	: Daily Pre-Jo tain sample n			it repair and driving REFERENCE: DFSNW-DOW-006, Rev. 0						LOCATION: TX Tank Farm, 200 West
REFEREN	CE MEASUR	UNG POINT	INT: Steel Plate TOTAL SHIFT FOOTAGE:							3.47 ft.
CONSTR	UCTION D	ESCRIPTIO	ON:		<i>21</i>			BORING DE		START TIME: 0700 END TIME: 1630
CASING SIZE	DEPTH	TYPE CASING	DRIVE PO	ION	START DEPTH	END DEPT	Н	START: 26.0 END: 29.49 f		CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	26.02 ft	27.84	ft			
DOC	UMENTED	DOWN TI	ME		L	OG SU	MN	IARY		PERSONNEL:
								art of shift) =		OPERATOR: KC Olson
	N/A							nd of shift) = 2		DL Curry/DE Morris
			1273		-		\rightarrow	end of shift) =	0.9 ft.	WA LICENSE #: 1217
WEATH	ER CONDIT	IONS (373-	-2716)	Total	l casing = 3: SA		OTHER: D Skoglie K Johnson H Sydnor			
b	ind 10-18 N arometric pr umidity 48%		S020	46-03 28.09	Snook and Sharp (Optr) K Hartelius (HPT) S.H. Worley, K.D. Reynolds, K. Flower					
TI	ME				DESCRI	PTION	OF	OPERATION	IS/REMARKS	3
FROM	TO		S 14 975	S 1-4 2						
07:00	10:30	lower sha		ent of th	he s	prockets. A ce		een the two sprockets on the live was installed on the drill		
		NOTE 1:	The fire ext	inguisl	her inspecto	r inspec	cted	all onsite fire	extinguishers.	All extinguishers passed.
		NOTE 2: personnel		was set	-up with a r	noise m	onit	or. Mr. Swees	y will evaluat	e data and review with TX
10:30	10:50	Inspect hy	draulic hose	s, valv	es and cont	rols to	veri	fy operation.		
10:50	11:00	The casing @	g was drove 27.84 ft bg	to a de	epth of 28.09	9 ft bgs	. В	low count is 1:	5/15. The casi	ing was pulled back 0.25 ft.
11:00	11:38		pe (4.5 inch)	remov	val. Chain o	lown th	e h	ydraulic jacks.		
11:38	12:10	Lunch								
12:10	13:25		alignment a							
13:25	14:01	Blows cou	int is 1/3/2.			- 10		- SE - S	7.51	8.09 to 29.49 ft bgs (1.4 ft).
14:01	14:40						@	14:40 hrs. Sar	nple was ship	ped to PNNL laboratory.
14:40	15:30	SCOTT STATE OF STATE	alignment an		The second secon					
15:30	16:30	Secure sit	e and compl	ete doc	umentation					
					N					
	BY: DE. Sk ield Team I JRE:					RE	EVI	EWED BY: M	G Gardner	

Duratek Duratek Federal Service	es, Inc., Northwest Operations
SAMPLE FORM	FAR No. 7 Page 2 of 2
Sample No. 502046 Sample Tracking No. 03 Target Depth 28 to 29 (1) 3.4 top of rig floor above ground (2) 4.3 casing stickup above ground Csg Total (3) 32.39 - Stickup (2) 4.3 = TD (4) 28.09 Does not include drive head Backpull stickup (2+5) 4.76 Sample depth (4) 28.09 to (4+6) (1.4) 29.49 Blow Count 1.4 ft 164 Start Time 1.5 ft 1 ft 1.5 ft	(2) 4.3 (1) 3.4 Ground Level
Estimated Recovery: Full Remarks: Floor hand touched and of sampler with gloves. Sample in bbl @ 14:40 hrs.	(3) <u>32.</u> 39
1 = Top of rig floor above ground 2 = Stickup of csg above ground 1 + measure from floor to top csg = SU 3 = Total csg length 4 = Depth of csg = Total Depth (TD) Total csg - SU ⁽²⁾ = TD 5 = Casing back pull 6 = Sampler drive distance 7 = Total depth of driven sample = 4 + 6	(7) 29.49 (5) .4(6)
PREPARED BY (Please print): TITLE: SIGNATURE: James Shockie	REVIEWED BY (Please print): MGGARDNER TITLE: Marager DATE: SIGNATURE: Mbball 8-13-02

DFSNW-WS-00_

110040										est Operations
DRILL	ING AND	SAMPL	ING (PE	RCUS	SSION) D	AILY	V	VORK REC	ORD	Page 1 of 2
WELL I.D	.: C3832		WELL NU	MBER:	N/A		R	EPORT NUMBE	R: 08	DATE: May 08, 2002 Wednesday
CONTRA	CT NUMBER	: 8248-55		STAI	RT CARD N	O: S006	NO: SIMCO 5000 (Rig 106)			
	: Daily equip sing. Obtain				eting, drill		EFE ev. (RENCE: DFSN	W-DOW-006,	LOCATION: TX Tank Farm, 200 West
REFEREN	CE MEASUR	RING POINT	Γ: Steel Plate					TOTAL SHIFT	FOOTAGE:	4.35 ft.
CONSTR	UCTION D	ESCRIPTIO	ON:					BORING DE	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	START TIME: 0700
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE P		START DEPTH	ENI DEPT		START: 29.4 END: 44.14		END TIME: 1630 CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	27.84 ft	43.84	lft	Sin Are Liberatur — Arthriddiae a		
DO	CUMENTE	D DOWN	TIME	_	1	LOGS	UN	IMARY		PERSONNEL:
20	COMENTE	DOWN.	IIII	Botto					27.84 ft	OPERATOR: KC Olson
	N/A Bottom of 7" OD casing (start of shift) = 27.84 Bottom of 7" OD casing (end of shift) = 43.84 ft							DL Curry/DE Morris		
								(end of shift) =		WA LICENSE #: 1217
WEATHI	ER CONDIT	IONS (373	-2716)	Total	casing = 4	8.39 ft	(C	onstant 3.4 ft)		OTHER: D Skoglie
					SA	AMPLI	K Johnson H Sydnor			
b	ind minimal arometric pr umidity 48%		S020	946-04 (36.0	1 to 37	7.89	ft) @ 10:45 hr	s. (#3)	Snook and Sharp (Optr) K Hartelius (HPT) K.D. Reynolds K. Flower	
TI	ME				DESCRI	PTION	O	OPERATION	C/DEMADES	
FROM	TO									
07:00	07:40	Equipmen Weekly s	nt inspection afety meetin	perfor g was o	med equipn conducted.	nent fue	elec	and completed	I. A Daily saf	ety meeting wsa conducted. A
07:40	07:55	Prep to di	rive casing.	Casing	bottom@	27.84 f	t. 7	Total casing 35.	39 ft. Casing	SU 3.4 ft.
07:55	08:29	Drive cas shoe dept	ing. Casing h (07:56). <i>A</i>	SU (rig	g floor 3.4 = sing 35.39 +	= 1.4 = 5.0 = 4	4.8 40.3	ft). Blow cour 9 ft.	its 9/10. Total	casing $35.39 - 4.8 = 30.59$ ft
08:29	08:31	Set hamm counts 3/8		rive. D	rive Casing	40.39) – ((3.4 + 0.9) = 4.	3 = 36.09 bott	om of casing (08:32). Blow
08:32	09:15							le – on bank. T		inutes.
09:15	10:00	Pick up sa	ampler and r	un in b	orehole. 5.	67 + 10	0.01	+ 10.02 + 10.0	1.	We will be a second of the sec
10:00		Adjusting	string lengt	h. Dri	ve sample 1	.2 ft. 1/	/1/1	(3 blows total)	10:11. Trip s	ampler out of borehole.
	11:29	Trip in. F	ickup casin	g 5.0 ft	(40.39 + 5)	= 45.39	ft.). Drive casing	. Blow count	s 14/12/13/13. Lunch 12:15
12:15	13:05		drive casing 16.11 + 3.01			6) = 40	.93	bottom casing	. Pickup 3.0	casing 45.39 + 3.0 + 48.39 ft.
13:05	14:15									ample. Bent wrench float pin). Blow counts 13/10/8/9.
14:15	15:00	Backpull	casing 0.25	ft. 48.3	39 - (3.4 + 1)	1.15) =	43.	84 bottom casis	ng.	•
15:00	15:30	Trip in the	e sampler ar	d place	on the bott	om. Sa	amp	ole string 5.67	10.01 + 10.0	2 + 10.01 + 13.0 + 6.2 = 54.91 I to PNNL laboratory.
REPORT	BY: D.E. Sk	111					1000000	EWED BY: M		
			01 1	020		1656		E: Project Mar		DATE: 8-1302

Sample No. \$\sigma_{QQO} 4(_o - Sample Tracking No. \$\sigma_{QQO} 4(_o - Sampl	Duratek	Duratek Federal Servic	es, Inc., Northwest	Operations
Target Depth 37 to 38 (1) 3.4 top of rig floor above ground (2) 4.5 casing stickup above ground Csg Total (3) 40.39 - Stickup (2) 4.3 = TD (4) 36.09 Does not include drive head Backpull stickup (2+5) 4.55 Sample depth (4) 36.09 to (4+6) (1.8) 37.89 Blow Count 1.8 FT Blow Count 1.8 FT Start Time End Time End Time Estimated Recovery: Folk Remarks: 5 Ample in bbl 6 to 45 kg. 1 = Top of rig floor above ground 1 + measure from floor to top csg = SU 3 = Total csg length 4 = Depth of csg = Total Depth (TD) Total csg = SU(2) = TD 5 = Casing back pull 6 = Sampler drive distance 7 = Total depth of driven sample = 4 + 6 REVIEWED BY (Please print): McGarrance TITLE: Date: Date: TITLE: Marker Date: REVIEWED BY (Please print): Magarance TITLE: Title: Marker Date: TITLE: Marker Date:	SA	MPLE FORM	FAR No. 8	Page 2 of 2
2 = Stickup of csg above ground 1 + measure from floor to top csg = SU 3 = Total csg length 4 = Depth of csg = Total Depth (TD) Total csg - SU ⁽²⁾ = TD 5 = Casing back pull 6 = Sampler drive distance 7 = Total depth of driven sample = 4 + 6 PREPARED BY (Please print): TITLE: PREVIEWED BY (Please print): McCARDANCE TITLE: DATE: 5/08/02 REVIEWED BY (Please print): MCCARDANCE TITLE: Manager DATE:	Sample No. So2 Target Depth 37 (1) 3.4 top of rig flo (2) 4.3 casing sticked Csg Total (3) 40.39 Does not include drive Backpull stickup (2+5) Sample depth (4) 36 Start Time End Time Estimated Recovery: Remarks:	to 38 or above ground ip above ground - Stickup (2) 4, 3 = TD (4) 36,09 head 4,55 .09 to (4+6) (1.8) 37,89 Blow Count 1.8 FT 5 ft 1 ft 1.8 ft	Ground Level	(2)4.3 (1) 3.4
SIGNATURE: SIGNATURE: Mobile 8-13-02	2 = Stickup of csg abortop csg = SU 3 = Total csg length 4 = Depth of csg = Tot Total csg - SU ⁽²⁾ = 5 = Casing back pull 6 = Sampler drive dista 7 = Total depth of driv	we ground 1 + measure from floor to al Depth (TD) TD ance en sample = 4 + 6	REVIEWED BY (Please prin	t): MGCARSNER
DFSNW-WS-00_		Mosfú		8-13-02

DRILL	ING AND	SAMPL	ING (PE	RCUS	SSION) I	AILY V	VORK REC	CORD	Page 1 of 3
WELL I.D.	.: C3832		WELL NUM	IBER:	N/A	R	EPORT NUMBI	ER: 09	DATE: May 09, 2002 Thursday
CONTRAC	CT NUMBER	: 8248-55		STAI	RT CARD N	O: S00630		RIG MODEL	NO: SIMCO 5000 (Rig 106)
	: Daily equip sing. Obtain s			fety me	eting, drill	REFE Rev. 0	RENCE: DFSN	W-DOW-006,	LOCATION: TX Tank Farm, 200 West
REFEREN	CE MEASUR	RING POINT	: Steel Plate				TOTAL SHIF	Γ FOOTAGE:	8.44 ft.
CONSTR	UCTION DI	ESCRIPTIO	N:N/A				BORING DE		START TIME: 0700
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE PO DIMENS		START DEPTH	END DEPTH	START: 44.1 END: 52.58		END TIME: 1630 CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	43.84 ft	50.93 ft	14.527.54187		
DOC	UMENTED	DOWN TI	ME		1	LOG SUM	MARY		PERSONNEL:
				Botto	om of 7 " O	D casing (s	start of shift) =	43.84 ft.	OPERATOR: KC Olson
	N/A						end of shift) = 5		DL Curry/DE Morris
			1211				nd of shift) = 1	.05 ft.	WA LICENSE #: 1217
WEATHE	ER CONDIT	IONS (373	-2716)	Total			nstant 3.4 ft).		OTHER: D Skoglie
11:30: W	ind N @ 8 n	noh: temper	ature 57F.		SA	MPLE SU	MMARY		K Johnson H Sydnor
	arometric pr			Same	ole: S0204	5-05 (#4) 4	4.14 – 45.54 (@ 08·40 hrs	Snook and Sharp (Optr)
. h	umidity 46%	% .					51.18 - 52.58		K Hartelius (HPT) K.D. Reynolds K. Flower
		Samp				, , ,			
200,000									
	ME TO				DESCRI	PTION OI	FOPERATION	IS/REMARKS	3
FROM	TO	Equipmen	at inspection	perfor					
FROM 07:00	2000000				med equipr	nent fuelec	and complete	i. A Daily sat	ety meeting was conducted.
FROM 07:00 07:45	TO 07:45	Set-up har	mmer. Driv and sampler	e Samp	med equiproler (1.4 ft)	nent fueled 44.14 – 43 The sample	and complete 5.54 (sample st r has moisture	d. A Daily sat ring 54.91 – 3 in the sample.	ety meeting was conducted. 4 - 6.12 [9.52]). BC 3/3/4 A e-tape and steel tape was
FROM 07:00 07:45 07:53	TO 07:45 07:53	Set-up had Trip pipe ran to eva	mmer. Driv and sampler luate for sta	e Samp from b nding v	med equiprobler (1.4 ft) porehole. To a vater. No is	nent fueled 44.14 – 4 The sample ndication of	and complete 5.54 (sample st r has moisture of standing wat	d. A Daily sat ring 54.91 – 3 in the sample. er. The boring	cety meeting was conducted. 4 - 6.12 [9.52]). BC 3/3/4
FROM 07:00 07:45 07:53	TO 07:45 07:53 08:33	Trip pipe ran to eva A 3 ft seco	mmer. Driv and sampler luate for sta- tion of casin	e Samp from b nding v g was i	med equiprobler (1.4 ft) corehole. Towater. No ir	nent fueled 44.14 – 4 The sample ndication of	and complete 5.54 (sample st r has moisture of standing wat g length is 45.3	1. A Daily saf ring 54.91 – 3 in the sample. er. The boring 9 ft bgs.	ety meeting was conducted. 4 - 6.12 [9.52]). BC 3/3/4 A e-tape and steel tape was
FROM 07:00 07:45 07:53 08:33 09:30	TO 07:45 07:53 08:33	Set-up had Trip pipe ran to eva A 3 ft sect No standin Set hamm	mmer. Driv and sampler luate for star tion of casin ng water in l er on casing	from b nding v g was i corehol	med equipmoder (1.4 ft) porehole. Towater. No interemoved. The (09:38).	the sample of the casing the distance of the casing the case of th	d and complete 5.54 (sample st r has moisture of standing wat g length is 45.3 Add casing/dr ing back to bot	d. A Daily saft ring 54.91 – 3 in the sample. er. The boring 9 ft bgs. 0 (5.0/5.0 ft). tom. Drive ca	ety meeting was conducted. 4 - 6.12 [9.52]). BC 3/3/4 A e-tape and steel tape was gwill sit until 09:30. sing @ 10:30, SU 1.04 ft sho
FROM 07:00 07:45 07:53 08:33 09:30 10:30	TO 07:45 07:53 08:33 09:30 10:30	Trip pipe ran to eva A 3 ft sect No standin Set hamm @ 45.95 ft	and sampler luate for station of casin mg water in the er on casing the bgs (50.39 mg, shoe @	from boorehold. The	med equipmoler (1.4 ft) porehole. Towater. No intermoved. The (09:38). weight push-1.04 = 45.	the sample rotal casing the detection of the case 95 ft). Block	d and complete 5.54 (sample st r has moisture of standing wat g length is 45.3 Add casing/dr ing back to bot ow count 18/31	d. A Daily saft ring 54.91 – 3 in the sample. er. The boring 9 ft bgs. 0 (5.0/5.0 ft). tom. Drive ca. Add casing	ety meeting was conducted. 4 - 6.12 [9.52]). BC 3/3/4 A e-tape and steel tape was gwill sit until 09:30. sing @ 10:30, SU 1.04 ft shore
FROM 07:00 07:45 07:53 08:33 09:30 10:30 11:12	TO 07:45 07:53 08:33 09:30 10:30 11:12	Set-up had Trip pipe ran to eva A 3 ft sect No standid Set hamm @ 45.95 ft Drive casi count 32/3	and sampler luate for startion of casing water in leer on casing the bgs (50.39 mg, shoe @ 80/29/27.	g was in borehold. The state of	med equipmoler (1.4 ft) porehole. Towater. No intermoved. The (09:38). weight push - 1.04 = 45. ft bgs (55.3) ipe remova	nent fuelect 44.14 – 4.2 The sample indication of the casing med the cas 95 ft). Blo 8 – 3.4 –0.	d and complete. 5.54 (sample str has moisture of standing wat g length is 45.3 Add casing/dr ing back to bot ow count 18/31 8 = 51.18 ft bg ulic leak has st	d. A Daily safering 54.91 – 3 in the sample. er. The boring 9 ft bgs. b (5.0/5.0 ft). tom. Drive ca. Add casing sis). Back-pull carted at the bo	ety meeting was conducted. 4 - 6.12 [9.52]). BC 3/3/4 A e-tape and steel tape was gwill sit until 09:30. sing @ 10:30, SU 1.04 ft shot 4.99/dp4.99.
FROM 07:00 07:45 07:53 08:33 09:30 10:30 11:12	TO 07:45 07:53 08:33 09:30 10:30 11:12	Set-up har Trip pipe ran to eva A 3 ft sect No standir Set hamm @ 45.95 ft Drive casis count 32/3 Remove d be evaluat	and sampler luate for startion of casing water in leer on casing the bgs (50.39 mg, shoe @ 80/29/27.	e Samp from b nding v g was i corehol . The v - 3.4 - 51.18 i itiate p fter lun	med equipmoler (1.4 ft) porehole. Towater. No is removed. The (09:38). weight push - 1.04 = 45. ft bgs (55.33) ipe remova ich. A call	the sample indication of cotal casing the case 95 ft). Block 8 - 3.4 -0.	d and complete 5.54 (sample st r has moisture of standing wat g length is 45.3 Add casing/dr ing back to bot ow count 18/31 8 = 51.18 ft bg ulic leak has st to BSE shop ar	d. A Daily safering 54.91 – 3 in the sample. er. The boring 9 ft bgs. b (5.0/5.0 ft). tom. Drive ca. Add casing sis). Back-pull carted at the bo	A e-tape and steel tape was will sit until 09:30. Sing @ 10:30, SU 1.04 ft shows the state of t
FROM 07:00 07:45 07:53 08:33 09:30 10:30 11:12 11:24 12:00	TO 07:45 07:53 08:33 09:30 10:30 11:12 11:24	Set-up han Trip pipe ran to eva A 3 ft sect No standin Set hamm @ 45.95 ft Drive casi count 32/3 Remove d be evaluat Lunch (b)	and sampler luate for startion of casing water in luer on casing the bgs (50.39 ang, shoe @ 80/29/27. Trive head in the further a bq chicken water in luer for the starting the starting that is the starting that it is the starting tha	e Samp from b nding v g was i porehol . The v - 3.4 - 51.18 i itiate p fter lun v/pinea	med equipmoler (1.4 ft) porehole. Towater. No intermoved. The (09:38). weight push-1.04 = 45. ft bgs (55.33) ipe removal. A call- upple and a	the sample indication of cotal casing the cas 95 ft). Blo 8 - 3.4 -0. I. A hydrawas made slice of Arithmetical function of the cas 95 ft.	d and completes 5.54 (sample st r has moisture of standing wat g length is 45.3 Add casing/dr ing back to bot ow count 18/31 8 = 51.18 ft bg ulic leak has st to BSE shop ar nerican).	d. A Daily saft ring 54.91 – 3 in the sample. er. The boring 9 ft bgs. o (5.0/5.0 ft). tom. Drive ca . Add casing of s). Back-pull	A e-tape and steel tape was will sit until 09:30. Sing @ 10:30, SU 1.04 ft shows the state of t
FROM 07:00 07:45 07:53 08:33 09:30 10:30 11:12 11:24	TO 07:45 07:53 08:33 09:30 10:30 11:12 11:24 12:00	Set-up han Trip pipe ran to eva A 3 ft sect No standin Set hamm @ 45.95 ft Drive casi count 32/3 Remove d be evaluat Lunch (b) Remove h	and sampler luate for station of casin mg water in le er on casing the base (50.39 mg, shoe @ 80/29/27. Trive head in the further a bay chicken wydraulic bra	e Samp from b nding v g was i borehol . The v -3.4 - 51.18 i itiate p fter lun w/pinea ke valv	med equipmoler (1.4 ft) porehole. Towater. No intermoved. The (09:38). weight push-1.04 = 45. ft bgs (55.36) ipe remova ich. A call supple and a live and evaluation.	the sample and the cas 95 ft). Blo 8 – 3.4 –0. 1. A hydrawas made slice of Armate. An County of the cas 1.4 –0.	d and completes 5.54 (sample st r has moisture of standing wat g length is 45.3 Add casing/dr ing back to bot ow count 18/31 8 = 51.18 ft bg ulic leak has st to BSE shop ar nerican).	d. A Daily saftring 54.91 – 3 in the sample. er. The boring 9 ft bgs. o (5.0/5.0 ft). tom. Drive ca. Add casing st. Back-pull earted at the board an O-ring kind ced (13:35) T	A e-tape and steel tape was will sit until 09:30. Sing @ 10:30, SU 1.04 ft shows the same of the mast. The leak with the way.
FROM 07:00 07:45 07:53 08:33 09:30 10:30 11:12 11:24 12:00 12:40 13:50	TO 07:45 07:53 08:33 09:30 10:30 11:12 11:24 12:00 12:40 13:50	Set-up har Trip pipe ran to eva A 3 ft sect No standir Set hamm @ 45.95 ft Drive casi count 32/3 Remove d be evaluat Lunch (bl Remove h	and sampler luate for station of casin mg water in le er on casing the base (50.39 mg, shoe @ 80/29/27. Trive head in the further a bay chicken wydraulic bra	e Samp from b nding v g was n porehol . The -3.4- 51.18 f itiate p fter lun v/pinea ke valv	med equipmoler (1.4 ft) porehole. Towater. No is removed. The (09:38). weight push - 1.04 = 45. ft bgs (55.33) ipe remova ich. A call is upple and a we and evaluationing. Dep	the sample and the cas 95 ft). Blo 8 – 3.4 –0. 1. A hydrawas made slice of Armate. An County of the cas 1.4 –0.	I and complete 5.54 (sample st r has moisture of standing wat g length is 45.3 Add casing/dr ing back to bot ow count 18/31 8 = 51.18 ft bg ulic leak has st to BSE shop ar nerican).	d. A Daily saftring 54.91 – 3 in the sample. er. The boring 9 ft bgs. o (5.0/5.0 ft). tom. Drive ca. Add casing st. Back-pull earted at the board an O-ring kind ced (13:35) T	A e-tape and steel tape was will sit until 09:30. Sing @ 10:30, SU 1.04 ft shows the same of the mast. The leak with son the way.
FROM 07:00 07:45 07:53 08:33 09:30 10:30 11:12 11:24 12:00 12:40 13:50 14:30	TO 07:45 07:53 08:33 09:30 10:30 11:12 11:24 12:00 12:40 13:50 14:30	Set-up har Trip pipe ran to eva A 3 ft sect No standir Set hamm @ 45.95 ft Drive casi count 32/3 Remove d be evaluat Lunch (bl Remove h The samp	and sampler luate for startion of casin mg water in luer on casing the bgs (50.39 mg, shoe @ 80/29/27. Trive head in the further are bg chicken wydraulic brather is run inter is set-up	e Samp from b nding v g was n corehol . The -3.4- 51.18 f itiate p fter lun v/pinea ke valv o the be to driv	med equipmoler (1.4 ft) porehole. Towater. No is removed. The (09:38). weight push - 1.04 = 45. ft bgs (55.33) ipe remova ich. A call ipple and a ive and evaluationing. Dep e sampler.	the sample indication of the casing the casing the case of the cas	d and completes 5.54 (sample st r has moisture of standing wat g length is 45.3 Add casing/dr ing back to bot ow count 18/31 8 = 51.18 ft bg ulic leak has st to BSE shop ar nerican). 0-ring was repla m is 51.18 ft bg	d. A Daily safering 54.91 – 3 in the sample. er. The boring 9 ft bgs. o (5.0/5.0 ft). tom. Drive ca. Add casing of safering arted at the bord an O-ring kinced (13:35) Tess.	A e-tape and steel tape was will sit until 09:30. Sing @ 10:30, SU 1.04 ft shows the same of the mast. The leak with son the way.
FROM 07:00 07:45 07:53 08:33 09:30 10:30 11:12 11:24 12:00 12:40 13:50 14:30 14:34	TO 07:45 07:53 08:33 09:30 10:30 11:12 11:24 12:00 12:40 13:50 14:30 14:34	Set-up han Trip pipe ran to eva A 3 ft sect No standin Set hamm @ 45.95 ft Drive casi count 32/3 Remove d be evaluat Lunch (bl Remove h The sampi The hamm	and sampler luate for startion of casin mg water in luster on casing the top of the top	from bending very great was reported by the second of the	med equipmoler (1.4 ft) porehole. Towater. No intermoved. The (09:38). weight push-1.04 = 45. ft bgs (55.3) ipe removation. A call interpole and a live and evaluation oring. Depute sampler. 18 - 52.58 ft	the sample andication of the casing the casing the case of the cas	I and completes 5.54 (sample st r has moisture of standing wat g length is 45.3 Add casing/dr ing back to bot ow count 18/31 8 = 51.18 ft bg ulic leak has st to BSE shop ar nerican). 0-ring was repla m is 51.18 ft bg	d. A Daily saft ring 54.91 – 3 in the sample. er. The boring 9 ft bgs. o (5.0/5.0 ft). tom. Drive ca. Add casing of the sample o	A e-tape and steel tape was will sit until 09:30. Sing @ 10:30, SU 1.04 ft shows the same of the mast. The leak with son the way.
FROM 07:00 07:45 07:53 08:33 09:30 10:30 11:12 11:24 12:00 12:40 13:50 14:34 14:35	TO 07:45 07:53 08:33 09:30 10:30 11:12 11:24 12:00 12:40 13:50 14:30 14:34 14:35 15:06	Set-up han Trip pipe ran to eva A 3 ft sect No standin Set hamm @ 45.95 ft Drive casi count 32/3 Remove d be evaluat Lunch (bl Remove h The sampi The hamn Drive the sampi	and sampler luate for station of casin mg water in later on casing the base of the sampler of th	g was reported by the second of the second o	med equipmoler (1.4 ft) porehole. To water. No intermoved. The (09:38). weight push-1.04 = 45. ft bgs (55.33) ipe removal. The condition of the condition of the condition of the condition of the condition. Depute sampler. 18 - 52.58 ft prehole. 15	the sample and the cas 95 ft). Blow contacts and the cas made and the cas solve of the cas and the cas	I and complete 5.54 (sample st r has moisture of standing wat g length is 45.3 Add casing/dr ing back to bot ow count 18/31 8 = 51.18 ft bg ulic leak has st to BSE shop ar nerican). 0-ring was repla m is 51.18 ft bg	d. A Daily saft ring 54.91 – 3 in the sample. er. The boring 9 ft bgs. o (5.0/5.0 ft). tom. Drive ca. Add casing of the sample o	A e-tape and steel tape was will sit until 09:30. Sing @ 10:30, SU 1.04 ft shows the same of the mast. The leak with son the way.
FROM 07:00 07:45 07:53 08:33 09:30 10:30 11:12 11:24 12:00 12:40 13:50 14:30 14:35 15:06	TO 07:45 07:53 08:33 09:30 10:30 11:12 11:24 12:00 12:40 13:50 14:30 14:34 14:35 15:06 16:30	Set-up han Trip pipe ran to eva A 3 ft sect No standin Set hamm @ 45.95 ft Drive casi count 32/3 Remove di be evaluat Lunch (b) Remove h The sampi The hamm Drive the Trip the sa Secure site	and sampler luate for startion of casin mg water in luster on casing the top of the top	g was reported by the second of the second o	med equipmoler (1.4 ft) porehole. To water. No intermoved. The (09:38). weight push-1.04 = 45. ft bgs (55.33) ipe removal. The condition of the condition of the condition of the condition of the condition. Depute sampler. 18 - 52.58 ft prehole. 15	the sample indication of the casing the casi	d and completes 5.54 (sample st r has moisture of standing wat g length is 45.3 Add casing/dr ing back to bot ow count 18/31 8 = 51.18 ft bg ulic leak has st to BSE shop ar nerican). 0-ring was repla m is 51.18 ft bg count is 3/3/1.5 p PNNL laborat G).	d. A Daily safering 54.91 – 3 in the sample. er. The boring 9 ft bgs. o (5.0/5.0 ft). tom. Drive ca. Add casing of safering arted at the bord an O-ring kind and (13:35) The safering s	A e-tape and steel tape was will sit until 09:30. Sing @ 10:30, SU 1.04 ft shows the same of the mast. The leak with the way.
FROM 07:00 07:45 07:53 08:33 09:30 10:30 11:12 11:24 12:00 12:40 13:50 14:30 14:34 14:35 15:06 REPORT 1	TO 07:45 07:53 08:33 09:30 10:30 11:12 11:24 12:00 12:40 13:50 14:30 14:34 14:35 15:06 16:30 BY: DE Sko	Set-up han Trip pipe ran to eva A 3 ft sec No standin Set hamm @ 45.95 ft Drive casi count 32/3 Remove d be evaluat Lunch (bl Remove h The sampi The hamm Drive the Trip the sa Secure site glie	and sampler luate for station of casin mg water in later on casing the base of the sampler of th	g was reported by the both to drive from the both the	med equipmoler (1.4 ft) porehole. To water. No intermoved. The (09:38). weight push-1.04 = 45. ft bgs (55.33) ipe removal. The condition of the condition of the condition of the condition of the condition. Depute sampler. 18 - 52.58 ft prehole. 15	the sample andication of the casing the case of Ariate. An Other botton of the case of the	I and complete 5.54 (sample st r has moisture of standing wat g length is 45.3 Add casing/dr ing back to bot ow count 18/31 8 = 51.18 ft bg ulic leak has st to BSE shop ar nerican). 0-ring was repla m is 51.18 ft bg	d. A Daily saft ring 54.91 – 3 in the sample. er. The boring 9 ft bgs. o (5.0/5.0 ft). tom. Drive ca. Add casing as arted at the boad an O-ring king arted (13:35) Tes.	Pety meeting was conducted. 14 – 6.12 [9.52]). BC 3/3/4 A e-tape and steel tape was a will sit until 09:30. 15 sing @ 10:30, SU 1.04 ft shows 4.99/dp4.99. 16 casing 0.25 ft (3 inch). Blows the steel was a will sit is on the way.

Duratek	Duratek Federal Servic	es, Inc., Northwe	st Operations
SA	MPLE FORM	FAR No. 9	Page 2 of 3
Sample No. So Target Depth 4 (1) 3.4 top of rig flo (2) 4.25 casing stick	to 45 oor above ground up above ground - Stickup (2) 4.2 = TD (4) 44.14 c head	Ground Level	Page 2 of 3 (2) 422 (1) 3.4 (3) 48.39
1 = Top of rig floor ab	tal Depth (TD) TD ance ten sample = 4 + 6	REVIEWED BY (Please pr TITLE: Manager SIGNATURE: Mbback	DATE:

Duratek **Duratek Federal Services, Inc., Northwest Operations** FAR No. 9 Page 3 of 3 SAMPLE FORM Sample No. 502046 Sample Tracking No. 06 52 Target Depth 53 (1) 3.4 top of rig floor above ground (2) 4,2 casing stickup above ground (2) 4. casing stickup above ground Csg Total (3) 55.38 - Stickup (2) 4. = TD (4) 51.18 Does not include drive head Backpull stickup (2+5) Sample depth (4) 5/.18 to (4+6) Ground Level **Blow Count** .5 ft 1 ft Start Time 14:34 3 3 2 End Time 14:35 Estimated Recovery: (3) 55.38 Remarks: (4) 51,18 sample in bbl @ 15:15 hrs. (7) 52.58 1 = Top of rig floor above ground 2 = Stickup of csg above ground 1 + measure from floor to top csg = SU3 = Total csg length4 = Depth of csg = Total Depth (TD)Total csg $- SU^{(2)} = TD$ 5 = Casing back pull 6 = Sampler drive distance 7 = Total depth of driven sample = 4 + 6PREPARED BY (Please print): REVIEWED BY (Please print): TITLE: Manager SIGNATURE: Mbander TITLE: DATE: SIGNATURE: 8-15-02

DFSNW-WS-00___

DRILL	ING AND	SAMPL	ING (PE	RCUS	SSION) E	AILY	W	ORK REC	ORD	Page 1 of 2	
WELL I.D.	: C3832		WELL NUM	IBER:	N/A		RE	PORT NUMBE	ER: 10	DATE: May 13, 2002 Monday	
CONTRAC	CT NUMBER	: 8248-55		STAF	RT CARD N	O: S006	30		RIG MODEL	/NO: SIMCO 5000 (Rig 106)	
	Daily equip		ion. Daily Sa	fety me	eting, Drivin		EFEI ev. 0	RENCE: DFSN	W-DOW-006,	LOCATION: TX Tank Farm, 200 West	
REFEREN	CE MEASUR	UNG POINT	: Steel Plate					TOTAL SHIFT	FOOTAGE:	7.54 ft.	
CONSTR	UCTION DI	ESCRIPTIO	ON: N/A					BORING DE		START TIME: 0700	
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE PO		START DEPTH	END DEPT	Sec. 1.	START: 52.5 END: 60.12		END TIME: 1630 CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5	
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	50.93 ft	59.87	ft				
DOC	UMENTED	DOWN TI	ME		L	OG SUI	MM	ARY		PERSONNEL:	
								art of shift) =		OPERATOR: KC Olson	
	N/A	X.						nd of shift) =		DL Curry/DE Morris	
WE A TUE	D COMPLET	IONE (272	2716)				_	$\frac{1}{1}$ of shift) = 0		WA LICENSE #: 1217	
WEATHE	R CONDIT	IONS (3/3	-2/16)	1 otal	Casing = 6	04.37 ft	(Co	onstant = 3.4 f	t)	OTHER: D Skoglie K Johnson	
60F, Barometric pressure 29.24, Humidity					MPLE SUMMARY 502046-07 (#5b) 53.08 – 54.43 ft.			Snook and Sharp (Optr) K Hartelius (HPT) K.D. Reynold			
	ME				DESCRI	PTION	OF	OPERATION	S/REMARKS	S	
FROM	TO	A Deller	- C-+				•0			1 '4 " "	
07:00 07:37	07:37 08:42							/dp (57.38 – 3		ed with no findings.	
08:42	09:00							ack pull 0.25 f		08 II.	
00.42	02.00	NOTE 1:	The dp jaw	s are lo	ose003 v	vas shav	ved			nserts placed, which are not a	
09:00	10:06		from boring			-		cked up and tr	inned into the	horing	
10:06	10:07									s]). Blow count 3/2/2.	
10:07	10:40	V-8751-111 0-5		597.5						radiological contamination.	
10:40	11:50						_		ACT TO A CONTRACT OF THE CONTR	5.0 (61.1). Connect head.	
11:50	12:00										
		Drive the casing to 55.87 ft bgs (60.37 – 3.4 – 1.1 =55.87 ft bgs). Blows were 2/5/16/22. NOTE 2: Stick up of the dp/head is 4.5 ft above the deck. Use this number when figuring su for driving.									
12:00	12:30	Lunch 12:30 – 12:40 Discussion on hydraulic fitting replacement.									
12:40	13:09	Add 4 ft casing/4 ft Dp. $(60.37 + 4.0 = 64.37)$. Set up the drive head.									
13:09	13:12	Drive casing to 60.12 ft bgs. Blows were 24/29/32/30/8.									
13.12	13:16	Back pull casing .25 ft. (casing @ 50.93 ft bgs) S.U. = 0.6 ft.									
13:16	14:00	Trip Dp out of bore hole.									
14:00	14:40	Trip in bore hole with sampler. Land on bottom. Secure site. Sample is shipped to the PNNL laboratory.									
								st is on the wa		▼ **)	
									10		
	BY: DE Sko					RE	EVIE	EWED BY: M	G Gardner		

Duratek Duratek Federal Se	ervices, Inc., Northwest Operations
SAMPLE FORM	FAR No. 10 Page 2 of 2
Sample No. 302046 Sample Tracking No. C	07
Target Depth 53 to 54	
(1) 3.4 top of rig floor above ground	
(2) 4.55 casing stickup above ground	
Csg Total (3) 57.3% - Stickup (2) 436 = TD (4)	
Does not include drive head	3.08
Backpull stickup (2+5) 4, 55	Rig Floor
Sample depth (4) 53.08 to (4+6) 54.43 (1.3	(5)
compression (i)	(2) 4.3 (1) 3.4
Blow Count 1,35 Pl	Ground Level
.5 ft 1 ft 1.5°ft	DEA I I I I I I I I I I I I I I I I I I I
Start Time	
10:06 3 2 2	
End Time	
10.01	-
Estimated Recovery: Foll	
	(3) 57.38
Remarks:	
sample in bbl @ 10:50 hrs.	(4) <u>53.</u> 98
3 Ample	
1 7 6 9 1	(1) 54.43
1 = Top of rig floor above ground 2 = Stickup of csg above ground 1 + measure from floor	to
top csg = SU	
3 = Total csg length	
4 = Depth of csg = Total Depth (TD)	10.35
Total csg – $SU^{(2)} = TD$	(5) .2
5 = Casing back pull 6 = Sampler drive distance	(6) /35
7 = Total depth of driven sample = 4 + 6	1 1 10 1/27
T. V	
PREPARED BY (Please print):	REVIEWED BY (Please print): MG GARDNER
TITLE: DATE: 1 05/13/02	TITLE: Marker DATE:
TITLE: SIGNATURE: Land & Sho glic	TITLE: Manager DATE: SIGNATURE: Mbach 8-1502
	Molonia

DFSNW-WS-00__

(1) D	ıratel	ķ	Durat	tek I	Federal	Ser	vio	es, Inc.,	Northw	est Operations
DRILLI	NG AND	SAMPL	ING (PE	RCUS	SSION) D	AILY	Z W	ORK REC	ORD	Page 1 of 3
WELL I.D.:	C3832		WELL NUM	MBER:	N/A		RE	PORT NUMBI	ER: 11	DATE: May 14, 2002 Tuesday
CONTRAC	Γ NUMBER	: 8248-55		STAI	RT CARD N	O: S006	30		RIG MODEL	/NO: SIMCO 5000 (Rig 106)
			ion. Daily Sa d 09 (see san				EFEI ev. 0	RENCE: DFSN	W-DOW-006,	LOCATION: TX Tank Farm, 200 West
REFERENC	E MEASUR	ING POINT	: Steel Plate					TOTAL SHIF	FOOTAGE:	8.89 ft.
CONSTRU	CTION DI	ESCRIPTIO	ON: N/A					BORING DE		START TIME: 0700
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE PO		START DEPTH	END DEPT	100	START: 60.1 END: 69.01		END TIME: 1630 CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	59.87 ft	68.76	ft	DIVD: 05.01		
DOCUN	MENTED D	OWN TIM	ſE.	T	I	LOG SU	JMN	MARY		PERSONNEL:
				Botto				tart of shift) =	59.87 ft.	OPERATOR: KC Olson
	N/A			Botto	om of 7" OI) casing	g (er	nd of shift) =	68.76 ft.	DL Curry/DE Morris
							_	end of shift) =		WA LICENSE #: 1217
WEATHE	R CONDIT	IONS (373-	-2716)	Total				onstant 3.4 ft).		OTHER: D Skoglie
07:00: Win	d NW @ 6	mph: temp	erature			SAMPL	ES	UMMARY		K Johnson
49F, Baron 65%.								@ 08:25 (60.12 @ 13:40 (61.76		Snook and Sharp (Optr) K Hartelius (HPT) K.D. Reynolds
TIM					DESCRI	PTION	OF	OPERATION	IS/REMARK	S
FROM	TO	- H								
	07:15							ns. No questi	ons or concern	18.
2.00.000	07:33		t inspection					-		. (21.225 (21.2) =
	07:41	S.U. Blov	ws are 3/3//	2.		35%				2 - (3.4 + 0.85 = 60.12) = 7.55
transvare .	08:20							6-08 [#6a]) in		
	08:55							n mast travels		g slips.
	09:43							add casing 5 f		
	10:17							09:47). Add a		
	10:58	Drive casing $67.36 - [3.4 + 2.2]$) = 61.76 ft bgs (10:41). Disassemble drive head/remove 2 ft casing/Dp.								
200 200 200	11:35	Trip Dp out of casing. Exit TX Tank Farm for lunch 11:35. 11:35 - 12:05. Lunch Trip sampler into boring. Set-up drive head.								
Constitution of the Consti	12:59									
	13:02	Drive sample (S02046-09) from 61.76 – 63.36 ft. (1.6 ft). 67.36 – (3.4 + 2.2) = 61.76 ft. Blows are 3/2/3.								
	13:40	Sampler tripped from boring (S02046-09 [#6b]). Place in barrel @ 13:40 hrs. Trip Dr. into boring (14:00). Add easing 5 0/Dr. 5 0. Total easing 70.36 ft. Total Dr. 71.1 ft).								
J. 100 100 100 100 100 100 100 100 100 10	14:20	Trip Dp into boring (14:00). Add casing 5.0/Dp 5.0. Total casing 70.36 ft. Total Dp 71.1 ft). Hammer set up (14:24). Drive casing to a depth of 65.86 ft box (70.36 – 13.4 + 1.11 = 65.86 ft).								
	14:27	Hammer set-up (14:24). Drive easing to a depth of 65.86 ft bgs (70.36 – [3.4 + 1.1] = 65.86 ft).								
	14:51	Drive head was disassembled. A section of casing (3.0 ft [total 73.36]) and Dp (3.0 [total 74.1]) was added.								
	14:54									
WHICE VALUE	15:30		p pull. Dp s	lips wi	II be rework					itory. Area Secured.
REPORT BY: DE Skoglie TITLE: Field Team Lead SIGNATURE: David E. Seglie REVIEWED BY: MG Gardner TITLE: Project Manager DATE: 8-15-02 SIGNATURE: Melbander										

Duratek	Duratek Federal Servic	es, Inc., Northwes	t Operations
SA	MPLE FORM	FAR No	Page 2 of 3
Sample No. SO20	046 Sample Tracking No. 08		
Target Depth 61			
(1) 3.4 top of rig flo	oor above ground		
(2) 4.25 casing stick			
Csg Total (3) 64.37	- Stickup (2) 4.2 = TD (4) 60.12		
Does not include drive			(5) .25
Backpull stickup (2+5) 4.5		Rig Floor
Sample depth (4)	0.12 to (4+6) 61.52 (1.4)		10.1125
			(2) 4.25 (1) 3.4
	Blow Count 1.4 FT	Ground Level	1000
	.5 ft 1 ft 1.5 ft 1/4		
Start Time			
0748	3 3 2		
End Time			
Estimated Recovery:	Ful		11/21
Remarks:			(3) 64.57
	133	(4)60.12	
Sample in	bbl e 08:25 hrs.		
25			
1 = Top of rig floor ab		(1)61.52	
2 = Stickup of csg abo top csg = SU	eve ground 1 + measure from floor to		
3 = Total csg length			
4 = Depth of csg = To	tal Depth (TD)		(5),25
Total $csg - SU^{(2)} =$ 5 = Casing back pull	:TD		
6 = Sampler drive dist	ance	(6) 1.4	
7 = Total depth of driv		↓	ا ا
PREPARED BY (Please p	rint):	REVIEWED BY (Please pri	
TITLE: SIGNATURE: Jan	L & Spate 5/14/02	TITLE: Marages SIGNATURE:	DATE:
SIGNATURE	- Ju	reband	8-15-02
DFSNW-WS-00			

A-18

Duratek	Duratek Federal Service	es, Inc., Northwest	Operations
SA	MPLE FORM	FAR No	Page <u>3</u> of <u>3</u>
Sample No. 502 Target Depth 62 (1) 3.4 top of rig fl (2) 5.6 casing stick Csg Total (3) 67,36 Does not include drive Backpull stickup (2+5 Sample depth (4) 6 Start Time 12:59 End Time 13:02 Estimated Recovery: Remarks: Sample 1 666 6	to 63 oor above ground up above ground - Stickup (2) 5.6 = TD (4) 61.76 e head 5.92 7.76 to (4+6) 63.36 (1.6) Blow Count 1.677 5 ft 1 ft 1.5 ft 2 2 2 3	Ground Level	Page 3 of 3 (5) .32 Rig Floor (2) 5.6 (1) 3.4 (3) 67.36
2 = Stickup of csg abortop csg = SU 3 = Total csg length 4 = Depth of csg = Total csg - SU ⁽²⁾ = 5 = Casing back pull 6 = Sampler drive dis 7 = Total depth of dri	= TD tance	(6) 1,6	(5) .32
PREPARED BY (Please) TITLE: SIGNATURE:	orint): Il & DATE: 05/14/02	REVIEWED BY (Please printing of the second o	DATE:

DFSNW-WS-00__

PURPOSE: casing. Obt REFERENC CONSTRU CASING SIZE 7.0 " OD DOC	Daily equipitain sample not consider the construction of the const	ment inspect imber S0204 NG POINT: SCRIPTION TYPE CASING	Steel Plate V: N/A DRIVE PO DIMENS Shoe, 7.5 "	STAR fety mee ee samp	T CARD NO	ENI DEPT	EFERENCE: DFSI ev. 0 TOTAL SHII BORING D START: 69	RIG MODEL NW-DOW-006, TT FOOTAGE: EPTH:	DATE: May 15, 2002 Wednesday //NO: SIMCO 5000 (Rig 106) LOCATION: TX Tank Farm, 20 West 6.98 ft. START TIME: 0700 END TIME: 1630
PURPOSE: casing. Obt REFERENC CONSTRU CASING SIZE 7.0 " OD DOC WEATHER 07:00: Wir 49F, Baro	Daily equipitain sample not consider the construction of the const	ment inspect imber S0204 NG POINT: SCRIPTION TYPE CASING	Steel Plate V: N/A DRIVE PO DIMENS Shoe, 7.5 "	fety medee samp	START DEPTH	ENI DEPT	EFERENCE: DFSI ev. 0 TOTAL SHII BORING D START: 69	T FOOTAGE: EPTH:	LOCATION: TX Tank Farm, 20 West 6.98 ft. START TIME: 0700
CASING SIZE 7.0 " OD DOC WEATHER 07:00: Wir 49F, Baro	tain sample not contain sample not contain sample not contain the	MG POINT: SCRIPTION TYPE CASING CS	Steel Plate V: N/A DRIVE PO DIMENS Shoe, 7.5 "	OINT	START DEPTH	ENI DEPT	ev. 0 TOTAL SHIII BORING D START: 69	T FOOTAGE: EPTH:	West 6.98 ft. START TIME: 0700
CONSTRUCATION OF CASING SIZE 7.0 " OD DOC WEATHER 07:00: Wir 49F, Baro	VCTION DEL SET- AT DEPTH NA CUMENTED	TYPE CASING CS	V: N/A DRIVE PO DIMENS Shoe, 7.5 "	ION	DEPTH	DEPT	BORING D START: 69	EPTH:	START TIME: 0700
CASING SIZE 7.0 " OD DOC WEATHER 07:00: Wir 49F, Baro	SET- AT DEPTH NA CUMENTED	TYPE CASING CS	DRIVE PO DIMENS Shoe, 7.5 "	ION	DEPTH	DEPT	START: 69		[] [] [] [] [] [] [] [] [] []
SIZE 7.0 " OD DOC WEATHER 07:00: Wir 49F, Baro	AT DEPTH NA CUMENTED	CASING	DIMENS Shoe, 7.5 "	ION	DEPTH	DEPT	D	.01 ft	END TIME: 1630
DOC WEATHER 07:00: Wir	NA CUMENTED N/A			OD	68.76 ft	200	TH END: 75	.99 ft	CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5
<i>WEATHER</i> 07:00: Wir 49F, Baro	N/A	DOWNTIA	ΛE			75.74		.99 II	
<i>WEATHER</i> 07:00: Wir 49F, Baro	N/A	DOWNTIA	AE.			10731	COMMANY		
07:00: Wir 49F, Baro				D-44			G SUMMARY	- 60 76 A	PERSONNEL: OPERATOR: KC Olson
07:00: Wir 49F, Baro			N/A Bottom of 7 " OD N/A						DL Curry/DE Morris
07:00: Wir 49F, Baro	R CONDITIO		Casing (7 in OD						WA LICENSE #: 1217
07:00: Wir 49F, Baro	R CONDITIO	Total Casing = 80							OTHER: D Skoglie
19F, Baro		WEATHER CONDITIONS (373-2716)							K Johnson
19F, Baro									Snook and Sharp (Optr)
48%.				Samp	ole: S02046-	-10 (#7	7) @ 10:33 (69.0	K Hartelius/J. Riley (HPT)	
	metric press	ure 29.33, 1	numidity .						K. Reynolds/K. Flower
TIA					DESCRI	PTIO	N OF OPERATIO	ONS/REMARKS	;
FROM	TO				·				
07:00	08:15	slips have 25 ft from	been rewor	ked and erform	d are onsite.	A 4.5	Dp was remove	d from the drill	concerns. (07:15) The 4.5 inc string due to belling (Dp was nes. System tested for torque.
08:15	09:20	Trip samp	ler into bori	ng. Se	t-up hamme	r.			
09:20	09:22	Drive sam	ple (S02046	5-10 [#	7]) from 69.	01 to 7	70.31 ft.). Blows	3/2/1. Drove s	sampler 1.3 ft.
09:22	10:33	Evaluate a	nd set drill	unit ali	gnment (09:	:50). 7	Trip sample form	boring (place i	n drum @ 10:33).
10:33	10:40	300	ft section o						,
10:40	12:00	Tighten ca	ble on ham	mer an	d perform n	nainten	nance on ICE Hai	nmer.	
12:00	12:35	Lunch							
12:35	13:00	Add casin	g 4.99 (total	75.35	and Dp 5.0	1 (tota	al 79.11). Set up	hammer.	
13:00	13:09								35 - (3.4 + 1.0) = 70.95 ft bgs.
13:09	13:35		7.77				84.11). Set up h		,
13:35	13:39								k pull casing 0.25 ft (75.74 ft.)
13:39	14:15						Trip Dp out of be		
14:15	15:00		ler to bottor				T - T		T
15:00	15:30	Mr. John I	Riley receiv	ed Dec	k Training.		lips for 4.5 and 7 ole was shipped t		oved from the RBA for further
REPORT F	BY: DE Skog			- J.1.0 Y	secured.		EVIEWED BY: N		,
	ield Team L	Λ	1 - 11	,			ITLE: Project M		DATE: 8-15-02
SIGNATU		Thurst	E. Sho	· lin	,		ITLE: Project M		2

SAMPLE FORM Sample No. 502046 Sample Tracking No. 10 Target Depth 69 to 70 (1) 3.4 top of rig floor above ground (2) 4.1 casing stickup above ground CSg Total (3) 73.16 - Stickup (2) 4.35 = TD (4) 69.01 Does not include drive head Backpull stickup (2+5) 4.6 Sample depth (4) 69.01 to (4+6) 70.11 (1.3) Blow Count Start Time 5 ft 1 ft 1	Duratek	Duratek Federal Service	es, Inc., Northwest	Operations
Target Depth 69 to 70 (1) 3.4 top of rig floor above ground (2) 4.5 casing stickup above ground Csg Total (3) 73.3 - Stickup (2) 4.3 = TD (4) 69.0 Does not include drive head Backpull stickup (2+5) 4.6 Sample depth (4) 69.0 to (4+6) 70.3 (1.3) Blow Count Blow Count 1.3 67 67.20 End Time 09.20 2 1 End Time 09.21 Estimated Recovery: Folk Remarks: \$SAmple in bbl @ 10:33 hrs. 1 = Top of rig floor above ground 1 + measure from floor to top csg = SU 3 = Total csg length 4 = Depth of csg = Total Depth (TD) Total csg = SU ²⁰ = TD 5 = Casing back pull 6 = Sampler drive distance 7 = Total depth of driven sample = 4 + 6 PREPARED BY (Please print): M6 GARBAUER TITLE: Mancar DATE: SIGNATURE: M	SA	MPLE FORM	FAR No. 12	Page 2 of 2
Target Depth 69 to 70 (1) 3.4 top of rig floor above ground (2) 4.5 casing stickup above ground Csg Total (3) 73.36 - Stickup (2) 4.35 = TD (4) 69.01 Does not include drive head Backpull stickup (2+5) 4.6 Sample depth (4) 69.0 to (4+6) 70.31 (1.3) Blow Count Blow Count 1.3 67 69.20 3 2 1 End Time 09.20 3 2 1 End Time 09.21 Estimated Recovery: Folk Remarks: \$SAmple in bbl @ 10:33 hrs. 1 = Top of rig floor above ground 1 + measure from floor to top csg = SU 3 = Total csg length 4 = Depth of csg = Total Depth (TD) Total csg = SU ²⁰ = TD 5 = Casing back pull 6 = Sampler drive distance 7 = Total depth of driven sample = 4 + 6 PREPARED BY (Please print): M6 Garbaree TITLE: FREPARED BY (Please print): M6 Garbaree TITLE: SIGNATURE: SIGNATURE: Markey DATE: SIGNATURE: Markey SIGNATURE: Markey DATE: SIGNATURE: Markey SIGNATURE: Markey DATE: SIGNATURE: Markey	Sample No. 50	2046 Sample Tracking No. 10		
C2) 4.15 casing stickup above ground Csg Total (3) 73.36 - Stickup (2) 4.35 = TD (4) 69.91 Does not include drive head Backpull stickup (2+5) 4.6 Sample depth (4) 69.91 to (4+6) 70.31 (1.3) Blow Count 1.3 47 Blow Count 1.3 47 Start Time O9.20 3 Z 1 End Time C9.22 Estimated Recovery: Full Remarks: SAmple in bbl @ 10:33 hrs. 1 = Top of rig floor above ground 1 + measure from floor to top csg = SU 3 = Total csg length 4 = Depth of csg = Total Depth (TD) Total csg - SU ² = TD 5 = Casing back pull 6 = Sampler drive distance 7 = Total depth of driven sample = 4 + 6 PREPARED BY (Please print): TITLE: SIGNATURE: SIGNATU	Target Depth 6	9 to 70	ş	
Csg Total (3) 73.36 - Stickup (2) 4.35 = TD (4) 69.91 Does not include drive head Backpull stickup (2+5) 4.6 Sample depth (4) 69.01 to (4+6) 70.31 (1.3) Blow Count Blow Count 1.3 FT O4.20 3 2 1 End Time O9.22 Estimated Recovery: Folk Remarks: SAmple in bbl @ 10:33 hrs. 1 = Top of rig floor above ground 2 = Stickup of csg above ground 1 + measure from floor to top csg = SU 3 = Total csg length 4 = Depth of csg = Total Depth (TD) Total csg = SU(2) = TD 5 = Casing back pull 6 = Sampler drive distance 7 = Total depth of driven sample = 4 + 6 PREPARED BY (Please print): TITLE: SIGNATURE: A series of the series of t	(1) <u>3.4</u> top of rig flo	oor above ground		
Does not include drive head Backpull stickup (2+5) 4.6 Sample depth (4) 69.0 to (4+6) 70.3 (1.3) Blow Count Start Time O9.20 3 2 1 End Time O9.22				
Does not include drive head Backpull stickup (2+5) 4.6 Sample depth (4) 69.0 to (4+6) 70.3 (1.3) Blow Count Start Time O9.20 3 2 1 End Time O9.22	Csg Total (3) 73.36	- Stickup (2) 4.35° = TD (4) 69.01		_
Sample depth (4) 69.01 to (4+6) 70.31 (1.3) Blow Count 1.3 FT Start Time O9.20 3 2 1 Estimated Recovery: Full Remarks: SAmple in bbl @ 10:33 hrs. 1 = Top of rig floor above ground 2 = Stickup of csg above ground 1 + measure from floor to top csg = SU 3 = Total csg length 4 = Depth of csg = Total Depth (TD) Total csg - SU(2) = TD 5 = Casing back pull 6 = Sampler drive distance 7 = Total depth of driven sample = 4 + 6 PREPARED BY (Please print): TITLE: PREPARED BY (Please print): TITLE: SIGNATURE: SIGNATURE: SIGNATURE: SIGNATURE: Moderator SIGNATURE: Mod		head		(5) ,25
Blow Count Start Time				Rig Floor
Blow Count 13 15 16 15 15 15 15 15 15	Sample depth (4) 6	9.01 to (4+6) 70.31 (1.3)		10 1/35
Estimated Recovery: Follow Count Start Time O9.20 Bend Time O9.22 Estimated Recovery: Follow Remarks: SAmple in bbl @ 10:33 hrs. 1 = Top of rig floor above ground 2 = Stickup of csg above ground 1 + measure from floor to top csg = SU 3 = Total csg length 4 = Depth of csg = Total Depth (TD) Total csg - SU(2) = TD 5 = Casing back pull 6 = Sample drive distance 7 = Total depth of driven sample = 4 + 6 PREPARED BY (Please print): TITLE: FIGURE SIGNATURE: FIGURE SIGNATURE: SIG				(2) 4.53 (1) 3.4
Start Time Oq. 20 3 2 1 Estimated Recovery: Foll Remarks: SAmple in bbl @ 10:33 hrs. 1 = Top of rig floor above ground 2 = Stickup of csg above ground 1 + measure from floor to top csg = SU 3 = Total csg length 4 = Depth of csg = Total Depth (TD) Total csg - SU ⁽²⁾ = TD 5 = Casing back pull 6 = Sampler drive distance 7 = Total depth of driven sample = 4 + 6 PREPARED BY (Please print): TITLE: SIGNATURE: January DATE: SIGNATURE: January D		Blow Count 13 GT		
Start Time O9. 20 End Time O9. 22 Estimated Recovery: Folk Remarks: SAmple in bbl @ 10: 33 hrs. 1 = Top of rig floor above ground 2 = Stickup of esg above ground 1 + measure from floor to top esg = SU 3 = Total csg length 4 = Depth of esg = Total Depth (TD) Total esg - SU(2) = TD 5 = Casing back pull 6 = Sampler drive distance 7 = Total depth of driven sample = 4 + 6 PREPARED BY (Please print): TITLE: SIGNATURE: PREVIEWED BY (Please print): MG GARDARE TITLE: SIGNATURE: BY OF A BANGER B		.5 ft 1 ft 1.5 ft DE4	N-R R R	
Estimated Recovery: Folk Remarks: SAmple in bbl @ 10:33 hrs. 1 = Top of rig floor above ground 2 = Stickup of csg above ground 1 + measure from floor to top csg = SU 3 = Total csg length 4 = Depth of csg = Total Depth (TD) Total csg - SU ⁽²⁾ = TD 5 = Casing back pull 6 = Sampler drive distance 7 = Total depth of driven sample = 4 + 6 PREPARED BY (Please print): TITLE: PREPARED BY (Please print): TITLE: SIGNATURE: January S/15/02 SIGNATURE: SIGNATURE: SIGNATURE: Manager DATE: SIGNATURE: SIGNATURE: Manager DATE: SIGNATURE: SIGNATURE: Manager DATE: SIGNATURE: Manager DATE: Manager DATE: Manager DATE: Manager DA				
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Estimated Recovery: Folk Remarks: SAmple in bbl @ 10:33 hrs. 1 = Top of rig floor above ground 2 = Stickup of csg above ground 1 + measure from floor to top csg = SU 3 = Total csg length 4 = Depth of csg = Total Depth (TD) Total csg - SU ⁽²⁾ = TD 5 = Casing back pull 6 = Sampler drive distance 7 = Total depth of driven sample = 4 + 6 PREPARED BY (Please print): TITLE: SIGNATURE: AND CARDWER TITLE: Manager DATE: SIGNATURE: BY (Please print): MG GARDWER TITLE: SIGNATURE: Manager BATE: S				
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SAmple in bbl @ 10:33 hrs. 1 = Top of rig floor above ground 2 = Stickup of csg above ground 1 + measure from floor to top csg = SU 3 = Total csg length 4 = Depth of csg = Total Depth (TD) Total csg - SU ⁽²⁾ = TD 5 = Casing back pull 6 = Sampler drive distance 7 = Total depth of driven sample = 4 + 6 PREPARED BY (Please print): TITLE: SIGNATURE: S	D1			(3) 73.36
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2 = Stickup of csg above ground 1 + measure from floor to top csg = SU 3 = Total csg length 4 = Depth of csg = Total Depth (TD) Total csg - SU ⁽²⁾ = TD 5 = Casing back pull 6 = Sampler drive distance 7 = Total depth of driven sample = 4 + 6 PREPARED BY (Please print): TITLE: SIGNATURE: SIGNATURE: SIGNATURE: SIGNATURE: PREVIEWED BY (Please print): MG GARDNER TITLE: SIGNATURE: SIGNATUR	1 = Top of rig floor ab	pove ground	(7) 70,31	
3 = Total csg length 4 = Depth of csg = Total Depth (TD) Total csg - SU ⁽²⁾ = TD 5 = Casing back pull 6 = Sampler drive distance 7 = Total depth of driven sample = 4 + 6 PREPARED BY (Please print): TITLE: SIGNATURE: SIGNATURE: SIGNATURE: SIGNATURE: SIGNATURE: A Control of the print of th	2 = Stickup of csg abo			
A = Depth of csg = Total Depth (TD) Total csg - SU ⁽²⁾ = TD 5 = Casing back pull 6 = Sampler drive distance 7 = Total depth of driven sample = 4 + 6 PREPARED BY (Please print): TITLE: SIGNATURE: SIGNAT				
Total csg – SU ⁽²⁾ = TD 5 = Casing back pull 6 = Sampler drive distance 7 = Total depth of driven sample = 4 + 6 PREPARED BY (Please print): TITLE: SIGNATURE: SIGNATU		tal Depth (TD)		4
5 = Casing back pull 6 = Sampler drive distance 7 = Total depth of driven sample = 4 + 6 PREPARED BY (Please print): TITLE: SIGNATURE: SIGNATURE: SI				(5) .25
7 = Total depth of driven sample = 4 + 6 PREPARED BY (Please print): TITLE: SIGNATURE: SIGNATURE: SIGNATURE: PREVIEWED BY (Please print): MC GARDNER DATE: SIGNATURE: SIGNATURE: SIGNATURE: SIGNATURE: PREVIEWED BY (Please print): MC GARDNER DATE: SIGNATURE: SIGNATURE: SIGNATURE:	5 = Casing back pull		1 1 1 2	
PREPARED BY (Please print): TITLE: SIGNATURE: SIGNATURE: PREVIEWED BY (Please print): MG GARDNER TITLE: Manager DATE: SIGNATURE: µllown 8-15-02			(6) 1/3	
SIGNATURE: David Sho shi Signature: Manager DATE: 8-15-02	/ = 1 otal depth of driv	Ven sample = $4 + 6$		
SIGNATURE: David Sho shi Signature: Manager DATE: 8-15-02				
SIGNATURE: David Sho shi Signature: Manager DATE: 8-15-02				
SIGNATURE: David Sho shi Signature: Manager DATE: 8-15-02	DDEDARED BV (Dlaces w	rint).	REVIEWED BY (Place prin	t) MGGARNER
7400002		-1 0 DATE: 1 5/15/02		129
7400002		al Shoglie		
	DFSNW-WS-00	0	740000	Markey

DRILL	ING AND	SAMPL	ING (PE	RCUS	SSION) D	AILY	WORK REC	CORD	Page 1 of 3	
WELL I.D.	C3832		WELL NUM	BER:	BER: N/A REPORT NUMBER: 13			DATE: May 16, 2002 Thursday		
CONTRAC	T NUMBER:	8248-55		STAR	START CARD NO: S00630 RIG MODEL			/NO: SIMCO 5000 (Rig 106)		
					ty meeting, Driving S02046-12 (#9). **REFERENCE: DFSNW-DOW-006, Rev. 0			LOCATION: TX Tank Farm, 200 West		
REFEREN	CE MEASUR.	ING POINT:	Steel Plate				TOTAL SHIFT	FOOTAGE:	7.0 ft.	
CONSTRU	JCTION DE	SCRIPTIO	N: N/A				BORING DE		START TIME: 0700	
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE PO		START DEPTH	END DEPTH			END TIME: 1630 CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5	
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	75.74 ft	82.99 f	10 march 18			
DO	CUMENTED	DOWNTI	ME		(CASING	SUMMARY		PERSONNEL:	
Bottom of 7 "OD									OPERATOR: KC Olson	
WARRAN I WAR							(end of shift) =		DL Curry/DE Morris	
Casing (7 in C									WA LICENSE #: 1217	
WEATHER CONDITIONS (373-2716)								9	OTHER: D Skoglie	
07:37: Wind SW @ 6 mph; temperature 50F, Barometric pressure 29.26, Humidity Sample: S02046-					ole: S02046	-11 (#8)	MPLE SUMMARY K Johnson Snook and Sharp (Optr) K Hartelius (HPT) K Flower K Johnson Snook and Sharp (Optr) K Hartelius (HPT) K Flower			
50%.			19.5	.=.						
FROM	ME TO				DESCR	IPTION	OF OPERATIO	NS/REMARKS	•	
07:00	07:37	noise mor		ty surv	eillance/au	dit, equi	pment inspection		y safety meeting (discussed ng and ladder use (07:37).	
07:37	07:53	Set-up has		1						
07:53	07:55	Drive sam	ple S02046-	-11 (# 8	3) 75.99 –	77.39 ft.	Blows Dry 1 3/2	2/1. Disassem	ible head, secure hammer.	
07:55	09:03						of boring and in			
09:03	09:24	Evaluate 1	nast chain s	pacer (a	another spa	cer will	be fabricated). P	ipe moved an	d staged in exclusion zone.	
09:24	10:07	Trip in Dp	(09:55). A	dd casi	ing 3 ft (tota	al 83.34	ft) and Dp 3 ft (t	otal 87.11 ft).		
10:07	10:14	Connect d dry /13/25		d drive	e casing to a	a depth o	f 78.99 ft bgs. 83	3.34 – (3.4 + 0	0.95) = 78.99 ft bgs. Blows 1	
10:14	11:08	Disasseml	ble head. Ba	ick-pul	l casing .25	ft. (10:	22). Trip out Dp	(water break	10:30 – 10:43).	
11:08	11:55						Exit zone for lu	2201210-2007-2010-2011-27	PROPERTY CONTROL AND ADDRESS OF THE PROPERTY O	
12:30	13:17	Set up har Disconnec	nmer. Drive et and trip sa	sampl mple fi	le S02046-1 rom boring	12 (#9) 7 . Sample	8.99 – 80.31 ft. (e in drum @ 13:1	12:40 – 12:41 7 hrs.) Blows Dry 1/6/4/2.	
13:17	14:08	Back-pull	and remove	casing	(13:25). 1	rip Dp i	n boring.			
14:08	14:22		g 5.0 (total 8							
14:22	14:47						14:46). BC 14/1 27. Disconnect h		casing 2 ft (87.34) and Dp 2 ft. cured.	
14:47	16:30	Samples s	hipped to Pl	NNL la	boratory. V	Work on	new drive head/o	locumentation	1.	
REPORT I	BY: DE Skog ield Team L JRE:	glie Fad -	E. Shog	lie	•	TIT	LE: Project Mar	nager	DATE: 8-15-02	

Duratek	Duratek Federal Service	es, Inc., Northwe	st Operations
SA	MPLE FORM	FAR No. <u>/3</u>	Page 2 of 3
Sample No. 502	046 Sample Tracking No. 1/		
Target Depth 7	6 to 77		
(1) <u>3.4</u> top of rig flo	oor above ground		
(2) 4.35 casing stick			
Csg Total (3) 80.44	- Stickup (2) 4/45 = TD (4) 75.99		
Does not include drive			(5) 25
Backpull stickup (2+5			Rig Floor
Sample depth (4)	5,99 to (4+6) 77,39 (1.4)		10.14
		*	(2) <u>4.93</u> (1) <u>3.4</u>
	Blow Count	Ground Leve	
	.5 ft 1 ft 1.5 ft 564		
Start Time			
07:53	3 2 1		
End Time			
01.33			
Estimated Recovery:	FUL		
Remarks:			(3) 80.44
	111 0 08:00 per	(4) 75. 99	
Sample in	bbl @ 09:00 hrs.	1 1 1 1	
1 = Top of rig floor ab		(7) 27-39	
, ,	ove ground 1 + measure from floor to		
top csg = SU 3 = Total csg length			
4 = Depth of csg = To	tal Depth (TD)		(5) 25
Total csg – $SU^{(2)}$ =	TD		(5) ,28
5 = Casing back pull			
6 = Sampler drive dist		(6) 1.4	\mathcal{E}
7 = Total depth of driv	ven sample = 4 + 6	A T	
PREPARED BY (Please p	orint):	REVIEWED BY (Please)	
TITLE: SIGNATURE: Day	I & State: 5/16/02	TITLE: Manager SIGNATURE:	DATE:
SIGNATURE: W	in wind	Marione. Malo	and

Duratek Duratek Federal Service	es, Inc., Northwest Operations
SAMPLE FORM	FAR No. <u>/3</u> Page <u>3</u> of <u>3</u>
Sample No. 50204 6 Sample Tracking No. 12 Target Depth 79 to 80 (1) 3.4 top of rig floor above ground (2) 4.35 casing stickup above ground Csg Total (3) 83.34 - Stickup (2) 4.35 = TD (4) 78.99 Does not include drive head Backpull stickup (2+5) 4.6 Sample depth (4) 78.99 to (4+6) 80.31 (1.32) Blow Count 1.32.FT Start Time 1.5 ft 1 ft 1.5 ft	Ground Level (2) 4.35 (1) 3.4
Estimated Recovery: Folk Remarks: \$\int \text{Top of rig floor above ground} \text{2} \text{3}:17 \text{ hrs}.} 1 = Top of rig floor above ground \text{2} = Stickup of csg above ground 1 + measure from floor to top csg = SU \text{3} = Total csg length} \text{4} = Depth of csg = Total Depth (TD) \text{Total csg} - SU^{(2)} = TD \text{5} = Casing back pull} \text{6} = Sampler drive distance} \text{7} = Total depth of driven sample = 4 + 6}	(4) <u>78.99</u> (7) <u>80.31</u> (6) <u>1.32</u>
PREPARED BY (Please print): TITLE: SIGNATURE: DATE: DATE: SIGNATURE: DESNW-WS-00_	REVIEWED BY (Please print): TITLE: Manager DATE: SIGNATURE: Mala 8-15-02

DRILLI	NG AND	SAMPL	ING (PE	RCUS	SION) D	AILY V	WORK REC	ORD	Page 1 of 2
WELL I.D.:	C3832		WELL NUM	BER: N	N/A	R	EPORT NUMBE	R: 14	DATE: May 17, 2002 Friday
CONTRAC	T NUMBER:	8248-55		STAR	T CARD NO	: S00630		RIG MODEL	NO: SIMCO 5000 (Rig 106)
	Daily equip tain sample n		tion. Daily Sa 46-13 (#10).	fety mee	ting, Drivin	g REFE Rev.	ERENCE: DFSN	W-DOW-006,	LOCATION: TX Tank Farm, 200 West
REFEREN	CE MEASUR	ING POINT:	Steel Plate				TOTAL SHIFT	FOOTAGE: 4	4.0 ft.
CONSTRUCTION DESCRIPTION: N/A					BORING DEPTH:			START TIME: 0700	
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE PO		START END DEPTH DEPTH END: 86.99 ft			END TIME: 1530 CONTRACTOR TIME: 0.5 TOTAL TIME: 8.5	
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	82.99 ft	86.74 ft			
DOC	CUMENTED	DOWNTI	ME		C	ASING SU	UMMARY		
				Botto	m of 7 " O	D casing (start of shift) =	82.99 ft.	PERSONNEL:
N/A Bottom of 7" OD									OPERATOR: KC Olson
Casing (7 in OD)							1	1.2 ft.	DL Curry/DE Morris WA LICENSE #: 1217
Total Casing = 91.34 ft. (WEATHER CONDITIONS (373-2716) SAMPLE							UMMARY	OTHER: D Skoglie	
pick up lat pressure 2	nd W @ 10 er; temperat 9.26, Humic	ture 56F, B		Samp	le: S02046	-13 (#10)	@ 11:55 (82.9	9 – 84.34)	K Hartelius (HPT) K. Flower
FROM	TO				DESCR.	IPTION O	F OPERATION	S/REMARKS	
07:00				Section of the Tax					
07.00	07:20	brused an	d swellen. J	.Swesse	ey/M. Gard	ner notifie	ed. H. Sydnor o	ontacted. M.	
	07:40	brused an to Health	d swellen. J	.Swesse check u	ey/M. Gard up. BSE al	ner notifie so contact	ed. H. Sydnor of ed, directed to	ontacted. M.	. Mr. Morris left ring finger is r Swessey will take Mr. Morris oked at by first aid.
07:20		brused an to Health Equipmen	d swellen. J Center for a nt inspection	Swesse check u perform	ey/M. Gard up. BSE al ned. No de	ner notifie so contact eficiencies	ed. H. Sydnor of ed, directed to	ontacted. M. have finger lo	r Swessey will take Mr. Morris oked at by first aid.
07:20	07:40	brused an to Health Equipmer Back pull Mr. Morr	d swellen. J Center for a nt inspection casing .25 f	.Swesse check u perform t. Casin to chec	ey/M. Gard up. BSE al med. No de ng @ 82.74 k out his fi	ner notifie so contact eficiencies of t bgs. T inger. The	ed. H. Sydnor of ed, directed to be rip Dp out of be nurse RN Jose	ontacted. M. have finger lo	r Swessey will take Mr. Morris oked at by first aid.
07:20 07:40 08:38	07:40 08:38 10:30	brused an to Health Equipmer Back pull Mr. Morr (left 4 th fir Trip Dp/s	d swellen. J Center for a nt inspection casing .25 f is at first aid nger). Retur ampler into	.Swesse check u perform t. Casin to chec in to wo	ey/M. Gard up. BSE al med. No de ng @ 82.74 ek out his fi ork without	ner notifies so contact eficiencies of the bgs. To inger. The restriction	ed. H. Sydnor of ed, directed to be rip Dp out of be nurse RN Jose	contacted. M. have finger lo oring (08:38 h phine Ocoma	r Swessey will take Mr. Morris oked at by first aid. rrs.)
07:20 07:40 08:38 10:30 11:05	07:40 08:38 10:30	brused an to Health Equipmer Back pull Mr. Morr (left 4 th fir Trip Dp/s Set drive	d swellen. J Center for a att inspection casing .25 f is at first aid nger). Retur ampler into head.	check to perform the Casin to check to to wo boring (ey/M. Gard up. BSE al med. No de ng @ 82.74 ek out his fi ork without (11:04 hrs).	ner notifie so contact eficiencies of the base. The inger. The restriction Move ce	ed. H. Sydnor of ed, directed to of the control of	ontacted. M. have finger lo oring (08:38 h phine Ocoma 11:05.	r Swessey will take Mr. Morris oked at by first aid. rrs.) stated bruising of the fingertip
07:20 07:40 08:38 10:30 11:05 11:12	07:40 08:38 10:30	brused an to Health Equipmer Back pull Mr. Morr (left 4 th fit Trip Dp/s Set drive	d swellen. J Center for a att inspection casing .25 f is at first aid nger). Retur ampler into head.	.Swesse check to perform it. Casin to chec on to wo boring (ey/M. Gard up. BSE al med. No de ng @ 82.74 ek out his fi ork without (11:04 hrs).	ner notifies so contact efficiencies of the street of the	ed. H. Sydnor of ed, directed to of the control of	ontacted. M. have finger lo oring (08:38 h phine Ocoma 11:05.	r Swessey will take Mr. Morris oked at by first aid. rrs.) stated bruising of the fingertip
07:20 07:40 08:38 10:30 11:05 11:12	07:40 08:38 10:30 11:05 11:12	brused an to Health Equipmer Back pull Mr. Morr (left 4 th fit Trip Dp/s Set drive Drive san reading is	d swellen. J Center for a att inspection casing .25 f is at first aid nger). Return ampler into head.	.Swesse check u perform th. Casin to chec to to wo boring (ey/M. Gardup. BSE al med. No de mg @ 82.74 k out his fi ork without (11:04 hrs).	ner notifies so contact efficiencies of the street of the	rip Dp out of be nurse RN Jose nter rod racks	ontacted. M. have finger lo oring (08:38 h phine Ocoma 11:05.	r Swessey will take Mr. Morris oked at by first aid. rrs.)
07:20 07:40 08:38 10:30 11:05 11:12 11:13 12:10	07:40 08:38 10:30 11:05 11:12 11:13	brused an to Health Equipmer Back pull Mr. Morr (left 4 th fit Trip Dp/s Set drive Drive san reading is	d swellen. J Center for a at inspection casing .25 f is at first aid nger). Retur ampler into head. upler 1.35 ft. slightly hig	.Swesse check u perform th. Casin to chec to to wo boring (ey/M. Gardup. BSE al med. No de mg @ 82.74 k out his fi ork without (11:04 hrs).	ner notifies so contact efficiencies of the street of the	rip Dp out of be nurse RN Jose nter rod racks	ontacted. M. have finger lo oring (08:38 h phine Ocoma 11:05.	r Swessey will take Mr. Morris oked at by first aid. rrs.) stated bruising of the fingertip
07:20 07:40 08:38 10:30 11:05 11:12 11:13 12:10	07:40 08:38 10:30 11:05 11:12 11:13	brused an to Health Equipmer Back pull Mr. Morr (left 4 th fir Trip Dp/s Set drive Drive sam reading is Trip Dp o	d swellen. J Center for a at inspection casing .25 f is at first aid nger). Retur ampler into head. upler 1.35 ft. slightly hig	.Swesse check to perform t. Casin to checen to wo boring (82.99 - her than	ey/M. Gardup. BSE al med. No de mg @ 82.74 k out his fi ork without (11:04 hrs).	ner notifies so contact efficiencies of the street of the	rip Dp out of be nurse RN Jose nter rod racks	ontacted. M. have finger lo oring (08:38 h phine Ocoma 11:05.	r Swessey will take Mr. Morris oked at by first aid. rrs.) stated bruising of the fingertip
07:20 07:40 08:38 10:30 11:05 11:12 11:13 12:10 12:40 13:33	07:40 08:38 10:30 11:05 11:12 11:13 11:55 12:40	brused an to Health Equipmer Back pull Mr. Morr (left 4th fit Trip Dp/s Set drive Drive sam reading is Trip Dp o Lunch Trip Dp/tt Add casin	d swellen. J Center for a at inspection casing .25 f is at first aid nger). Return ampler into head. upler 1.35 ft. slightly hig aut of boring	.Swesse check to perform t. Casin to chece in to wo boring (82.99 - her than . Sample	ey/M. Gardup. BSE al med. No de mg @ 82.74 k out his fi ork without (11:04 hrs). - 84.34 ft. n back grou le in barrel	Iner notifies so contact efficiencies of the structure of	rip Dp out of be nurse RN Jose nter rod racks nt 2/2/1. Samp nrs.	ontacted. M. have finger lo oring (08:38 h phine Ocoma 11:05.	r Swessey will take Mr. Morris oked at by first aid. ars.) stated bruising of the fingertip 2046-13 (#10). HPT states GM
07:20 07:40 08:38 10:30 11:05 11:12 11:13 12:10 12:40 13:33 13:58	07:40 08:38 10:30 11:05 11:12 11:13 11:55 12:40 13:33	brused an to Health Equipmer Back pull Mr. Morr (left 4 th fit Trip Dp/s Set drive Drive sam reading is Trip Dp of Lunch Trip Dp/ti Add casin Drive casings.	d swellen. J Center for a at inspection casing .25 f is at first aid nger). Return ampler into head. apler 1.35 ft. slightly hig ut of boring to bottom. ag 4 ft (total ing (91.34 –	.Swesse check to perform the Casin to check to check to check to check to the condition of	ey/M. Gard up. BSE al med. No de ng @ 82.74 ek out his fi ork without (11:04 hrs). 84.34 ft. n back grou le in barrel (1) and Dp 4 (1) 25) = 86.9	Iner notifies so contact efficiencies of the bas. The restriction of the base	ed. H. Sydnor of ed, directed to be directed to be nurse RN Jose directed rocks and 2/2/1. Samp hrs.	contacted. M. have finger looping (08:38 hphine Ocoma 11:05.	r Swessey will take Mr. Morris oked at by first aid. rs.) stated bruising of the fingertip 2046-13 (#10). HPT states GM
07:20 07:40 08:38 10:30 11:05 11:12 11:13 12:10 12:40 13:33 13:58	07:40 08:38 10:30 11:05 11:12 11:13 11:55 12:40 13:33 13:58	brused an to Health Equipmer Back pull Mr. Morr (left 4 th fit Trip Dp/s Set drive Drive sam reading is Trip Dp of Lunch Trip Dp/ti Add casin Drive casings.	d swellen. J Center for a at inspection casing .25 f is at first aid nger). Return ampler into head. apler 1.35 ft. slightly hig ut of boring to bottom. ag 4 ft (total ing (91.34 –	.Swesse check to perform the Casin to check to check to check to check to the condition of	ey/M. Gard up. BSE al med. No de ng @ 82.74 ek out his fi ork without (11:04 hrs). 84.34 ft. n back grou le in barrel (1) and Dp 4 (1) 25) = 86.9	Iner notifies so contact efficiencies of the bas. The restriction of the base	rip Dp out of be nurse RN Jose nter rod racks nt 2/2/1. Samp nrs.	contacted. M. have finger looping (08:38 hphine Ocoma 11:05.	r Swessey will take Mr. Morris oked at by first aid. rs.) stated bruising of the fingertip 2046-13 (#10). HPT states GM
07:20 07:40 08:38 10:30 11:05 11:12 11:13 12:10 12:40 13:33 13:58	07:40 08:38 10:30 11:05 11:12 11:13 11:55 12:40 13:33 13:58 14:02	brused an to Health Equipmer Back pull Mr. Morr (left 4 th fir Trip Dp/s Set drive Drive sam reading is Trip Dp to Lunch Trip Dp/tt Add casin Drive casi bgs.	d swellen. J Center for a at inspection casing .25 f is at first aid nger). Return ampler into head. apler 1.35 ft. slightly hig ut of boring to bottom. ag 4 ft (total ing (91.34 –	.Swesse check to perform the Casin to check to check to check to check to the condition of	ey/M. Gard up. BSE al med. No de ng @ 82.74 ek out his fi ork without (11:04 hrs). 84.34 ft. n back grou le in barrel (1) and Dp 4 (1) 25) = 86.9	Incr notifies so contact efficiencies of the so. The restriction of the solution of the soluti	ed. H. Sydnor of ed, directed to ed, directed to ed, directed to entry Dp out of be nurse RN Jose entry and racks entry 2/2/1. Samplers. 5.12 ft). Blow count 14/2 shipped to PNN	contacted. M. have finger looping (08:38 hphine Ocoma 11:05. de number S02 119/19/25. Ba	r Swessey will take Mr. Morris oked at by first aid. rs.) stated bruising of the fingertip 2046-13 (#10). HPT states GM
07:20 07:40 08:38 10:30 11:05 11:12 11:13 12:10 12:40 13:33 13:58 14:02	07:40 08:38 10:30 11:05 11:12 11:13 11:55 12:40 13:33 13:58 14:02 15:30	brused an to Health Equipmer Back pull Mr. Morr (left 4 th fit Trip Dp/s Set drive Drive sam reading is Trip Dp of Lunch Trip Dp/ti Add casin Drive casibgs. Secure sit	d swellen. J Center for a at inspection casing .25 ft is at first aid nger). Return ampler into head. appler 1.35 ft. slightly hig ut of boring to bottom. g 4 ft (total ing (91.34 –	.Swesse check to perform the Casin to check to check to check to check to check to the control to wood boring (182.99 - the change). Sample 191.34 ft (3.4 + (194.4 to check t	ey/M. Gard up. BSE al med. No de ng @ 82.74 ek out his fi ork without (11:04 hrs). 84.34 ft. n back grou le in barrel (1) and Dp 4 (1) 25) = 86.9	Incr notifies so contact efficiencies of the so. The restriction of the solution of the soluti	ed. H. Sydnor of ed, directed to ed, directed to ed, directed to ed, directed to entry possible	contacted. M. have finger looping (08:38 hphine Ocoma 11:05. Ten number S02 Ten number S02 Ten number S02 Ten number S02 Ten number S02	r Swessey will take Mr. Morris oked at by first aid. rs.) stated bruising of the fingertip 2046-13 (#10). HPT states GM
07:20 07:40 08:38 10:30 11:05 11:12 11:13 12:10 12:40 13:33 13:58 14:02	07:40 08:38 10:30 11:05 11:12 11:13 11:55 12:40 13:33 13:58 14:02 15:30	brused an to Health Equipmer Back pull Mr. Morr (left 4 th fit Trip Dp/s Set drive Drive sam reading is Trip Dp of Lunch Trip Dp/ti Add casin Drive casibgs. Secure sit	d swellen. J Center for a at inspection casing .25 f is at first aid nger). Return ampler into head. apler 1.35 ft. slightly hig ut of boring to bottom. ag 4 ft (total ing (91.34 –	.Swesse check to perform the Casin to check to check to check to check to check to the control to wood boring (182.99 - the change). Sample 191.34 ft (3.4 + (194.4 to check t	ey/M. Gard up. BSE al med. No de ng @ 82.74 ek out his fi ork without (11:04 hrs). 84.34 ft. n back grou le in barrel (1) and Dp 4 (1) 25) = 86.9	Incr notifies so contact efficiencies of the serior of the	ed. H. Sydnor of ed, directed to ed, directed to ed, directed to entry Dp out of be nurse RN Jose entry and racks entry 2/2/1. Samplers. 5.12 ft). Blow count 14/2 shipped to PNN	contacted. M. have finger looping (08:38 hphine Ocoma 11:05. Tenumber S02 Tenumber S02 Tenumber S02 Tenumber S02 Tenumber S02	r Swessey will take Mr. Morris oked at by first aid. rs.) stated bruising of the fingertip 2046-13 (#10). HPT states GN

Duratek	Duratek Federal Servic	es, Inc., Northwes	t Operations
SA	MPLE FORM	FAR No	Page of
Sample No. 502	2046 Sample Tracking No. 13		
Target Depth 8:	3 to 84	-	
floor (1) 3.4	to ground and casing (csg) above rig		K=3 10 36
Csg Total (3) 87,34	- Stickup (2) 4. 35 = TD (4)		(5) ,25
Does not include drive	head		Rig Floor
Backpull stickup (2+5) 4.6		(2) 4.35
Sample depth (4) 82	2.99 to (4+6) 84.34		(1) 3.4
End Time /(112 //13 Estimated Recovery: Remarks:	Blow Count 1.35 PT. 5 ft 1 ft 1.8 ft 1 ps. 2 2 1 FOUL 561 © 11:55 hrs.	(4) 82.99	(3) 87.34
1 = Height of rig above 2 = Stickup of csg above top csg = SU 3 = Total csg length 4 = Depth of csg = Tot Total csg - SU ⁽²⁾ = 5 = Casing back pull 6 = Sampler drive dista	ve ground 1 + measure from floor to tal Depth (TD) TD	(6) <i>[.35</i>	(5) .25
PREPARED BY (Please pr TITLE: SIGNATURE:	wid EDATE: 5/17/02	REVIEWED BY (Please print TITLE: Manager SIGNATURE:	DATE: 8-15-02

DRILLI	NG AND	SAMPL	ING (PE	RCUS	SSION) D	AILY	y w	ORK REC	ORD	Page 1 of 3
WELL I.D.:	C3832		WELL NUM	BER:	N/A		REI	PORT NUMBE	R: 15	DATE: May 20, 2002 Monday
CONTRACT	NUMBER:	8248-55		STAR	START CARD NO: S00630 RIG MODE			RIG MODEL	/NO: SIMCO 5000 (Rig 106)	
			tion. Daily Sa 46-14 (#11) a				EFER ev. 0	ENCE: DFSN	W-DOW-006,	LOCATION: TX Tank Farm, 200 West
REFERENC	E MEASUR	ING POINT:	Steel Plate					TOTAL SHIFT	FOOTAGE:	7.41 ft.
CONSTRUCTION DESCRIPTION: N/A					BORING DEPTH:			START TIME: 0700		
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE PO		START DEPTH	ENE DEPT				END TIME: 1530 CONTRACTOR TIME: 0.5 TOTAL TIME: 8.5
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	86.74 ft	92.74	ft			
DOC	UMENTED	DOWNTI	ME		(CASING	S SUI	MMARY		
Bottom of 7 " OD ca							g (sta	art of shift) =	86.74 ft.	PERSONNEL:
	N/A							d of shift) =		OPERATOR: KC Olson
								nd of shift) = $nstant = 3.4 f$		DL Curry/DE Morris WA LICENSE #: 1217
WEATHER	CONDITI	ONS (373-2	716)	Total				MMARY	.)	OTHER: D Skoglie
					mple: S02046-14 (#11) @ 10:00 (86.99 – 88.4) mple: S02046-15 (#12) @ 15:10 (92.99 – 94.4)					K Hartelius (HPT) K. Flower K. Jones/J. Beck (BSE)
FROM	TO				DESCR	IPTION	V OF	OPERATION	IS/REMARKS	
	07:55							No question avel to 272W		(07:20). Equipment inspection
07:55	09:15	Trip Dp o	ut of boring	(08:35	hrs.). Trip	in San	npler	(09:10 hrs.).	Set up hamm	er.
09:15	10:15		nple 86.99 – :00 hrs. Wat				s 1 dı	y 2/5/2 (09:1	8 hrs.). Trip s	sample from boring. Sample in
10:15	11:04	Pull and r	emove casir	g (4 ft	and 2 ft) 10	:40 hrs	s. Tr	ip Dp in borin	g.	
	11:28								et up hammer	
(C-1) Series (C-1)	12:05		ing. Add ca	sing 5.0	0 ft (total 9	5.34 ft)	and .	Dp 5.01 (total	99.13 ft).	
	12:35	Lunch	Association		Service Service	Arest Section	30000	Committee and contraction	12 24 150 150 150 160 160 160 160 160 160 160 160 160 16	The second construction of the second constructi
	12:56									gs. BC 11/12/17/23.
	13:13							01.13 ft). Set		
	13:52	ft. Casing	g @ 92.74 ft	bgs. T	rip Dp out	of bori	ng.	172 (0	3:14 hrs.). BC	C 15/26. Back pull casing .25
	14.20	Trip samp	oler to botton						86 1944-700	
13:52	14:29			- 94.4 f	t) 1.41 ft. B	lows 1	dry :	3/3/3 (14:30 h	rs.) Trip san	aple out of boring (in drum) @
13:52 14:29	15:10	15:10 hrs.			18			A1-VIII-18-01-VII-18-01-VII-18-01-VII-18-01-VII-18-01-VII-18-01-VII-18-01-VII-18-01-VII-18-01-VII-18-01-VII-18		
13:52 14:29 15:10	15:10 15:45	15:10 hrs. Initiate D	p trip into be	oring. 1	COURT PRODUCTION	100		esign drive he		
13:52 14:29 15:10 15:45	15:10 15:45 16:30	15:10 hrs. Initiate Dy Secure sit	p trip into be e. Samples	oring. I	COURT PRODUCTION	laborate	огу.	Complete do	cumentation.	
13:52 14:29 15:10 15:45	15:10 15:45 16:30	15:10 hrs. Initiate Dy Secure sit	p trip into be	oring. I	COURT PRODUCTION	laborate	огу. EVIE		cumentation. Gardner	DATE: 8-15-02

Duratek	Duratek Federal Servi	ces, Inc., Northwe	st Operations
SA	MPLE FORM	FAR No. 15	Page 2 of 3
Sample No. 502	2046 Sample Tracking No. 14		
Target Depth 87]	
(1) <u>3.4</u> top of rig flo	oor above ground		80
(2) 4,35 casing stick	up above ground		
Csg Total (3) 91.34	- Stickup (2) 4,35 = TD (4) 86,99		1
Does not include drive	e head		(5), 25
Backpull stickup (2+5) 4.6		Rig Floor
Sample depth (4) 86	2.99 to (4+6) 88, 40		101/25
			(2) 4.35 (1) 3.4
	Blow Count [.41 FT	Ground Level	
	.5 ft 1 ft 1.5 ft 15 ft		
Start Time	2 5 2		
O9:15 End Time	2 5 2		
09:18			
	-		
Estimated Recovery:	Full		(3) 91.34
Remarks:			107
sanda in	bbl @ 10:00 hrs.	(4) <u>86.</u> 99	
3 HM PIE IN	35- 3 10-03		
1 = Top of rig floor ab	oove ground	(7) 88.40	
	ove ground 1 + measure from floor to		
top csg = SU			
3 = Total csg length 4 = Depth of csg = To	tal Donth (TD)		4
Total csg – $SU^{(2)}$ =	= TD		(5).25
5 = Casing back pull		1 1 -1 - 1	\
6 = Sampler drive dist		(6) 1.4	1
7 = Total depth of dri	ven sample = 4 + 6	V _ L	—
PREPARED BY (Please p	orint):	REVIEWED BY (Please p	print): MGGARSNER
TITLE:	\$ PATE: 5/20/02	TITLE: Manager	DATE:
SIGNATURE:	N Shoglie	SIGNATURE: Mblad	2 8-15-02
DFSNW-WS-00			

Duratek **Duratek Federal Services, Inc., Northwest Operations** FAR No. 15 Page 3 of 3 SAMPLE FORM 502046 Sample Tracking No. 15 Sample No. 93 to Target Depth (1) 3.4 top of rig floor above ground (2) 4,35 casing stickup above ground Csg Total (3) 97,34 - Stickup (2) 4,35 = TD (4) 92,99 Does not include drive head Backpull stickup (2+5) 4.6 92.99 to (4+6) Sample depth (4) (1.41) **Blow Count** .5 ft 1 ft Start Time 3 3 1429 End Time 1430 Estimated Recovery: Full 97.34 Remarks: (4) 92.99 SAmple in bbl @ 15:10 hrs. (7) 94.4 1 = Top of rig floor above ground 2 = Stickup of csg above ground 1 + measure from floor to top csg = SU3 = Total csg length4 = Depth of csg = Total Depth (TD)Total csg $- SU^{(2)} = TD$ 5 = Casing back pull 6 = Sampler drive distance 7 = Total depth of driven sample = 4 + 6REVIEWED BY (Please print): MCBACDARE PREPARED BY (Please print): and Shoglie DATE: TITLE: TITLE: Manag SIGNATURE: 8-15-02

A-29

DFSNW-WS-00_

DRILL	ING AND	SAMPL	ING (PE	RCUS	SION) I	AILY	WORK REC	CORD	Page 1 of 1	
WELL I.D.	: C3832		WELL NUM	BER: N	N/A	1	REPORT NUMBE	R: 16	DATE: May 21, 2002 Tuesday	
CONTRAC	CT NUMBER:	8248-55		STAR	T CARD NO	: S00630		RIG MODEL	/NO: SIMCO 5000 (Rig 106)	
PURPOSE casing	: Daily equip	ment inspect	ion. Daily Saf	ety meet	ting, Driving	REF Rev.	ERENCE: DFSN	W-DOW-006,	LOCATION: TX Tank Farm, 200 West	
REFEREN	CE MEASUR	ING POINT:	Steel Plate				TOTAL SHIFT	FOOTAGE:	1.24 ft.	
CONSTR	NSTRUCTION DESCRIPTION: N/A						BORING DE		START TIME: 0700	
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE PO		START DEPTH	END DEPTH			END TIME: 1630 CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5	
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	92.74 ft	95.64 ft				
DO	CUMENTEL	DOWNTI	⊥ МЕ			ASING S	UMMARY			
Bottom of 7 " O							ALL STATE OF THE S	92.74 ft.	PERSONNEL:	
						casing ((end of shift) =	95.64 ft.	OPERATOR: KC Olson	
C							(end of shift) =		DL Curry/DE Morris	
							(Constant = 3.4	ft.)	WA LICENSE #: 1217	
WEATHE	R CONDITI	ONS (373-2	2716)			SAMPLE	SUMMARY		OTHER: D Skoglie	
07:34: Wind NW @ 12 mph (gusts to 25 throughout day); temperature 57F, Barometric pressure 29.08, Humidity 53%.						N/A	K Johnson (Optr/PIC) K Hartelius (HPT) K. Flower K. Jones/J. Beck (BSE)			
						14/21				
									K. Jones/J. Beck (BSE)	
. T	ME	Ι			D. FIGGE	IDETICAL I	00 00 00 4 TV 0			
FROM	TME TO				DESCR	IPTION (OF OPERATIO	NS/REMARKS		
			ety meeting.		s anticipat	ed activit	ies and weight o	f Dp (14 #/ft)		
FROM	TO	(07:25).	ety meeting. Equipment in	nspectio	s anticipat on and com	ed activit pleted. N	ies and weight o Mr. Beck and Jo	of Dp (14 #/ft) nes travel to E	No-questions or concerns	
FROM 07:00	TO 07:56	(07:25). Trip Dp ii	ety meeting. Equipment into boring.	nspection Add cas	s anticipat on and com sing (95.34	ed activit pleted. N + 5.0 = 1	ies and weight o Mr. Beck and Jo	of Dp (14 #/ft) nes travel to E p 96.13 ft + 5	No-questions or concerns SE yard to decon DP 0 = 101.13 ft). Set up hammer	
FROM 07:00 07:56	TO 07:56 08:58	(07:25). Trip Dp in Drive cas	ety meeting. Equipment into boring.	nspection Add cas ry 1 1/1	s anticipat on and com sing (95.34	ed activit pleted. N + 5.0 = 1	ies and weight of Mr. Beck and Jo 00.34 ft) and D	of Dp (14 #/ft) nes travel to E p 96.13 ft + 5	No-questions or concerns SE yard to decon DP 0 = 101.13 ft). Set up hammer	
FROM 07:00 07:56 08:58	TO 07:56 08:58 09:02	(07:25). Trip Dp in Drive cas Disconne	ety meeting. Equipment into boring. ing Blows dict drive head	nspection Add cas ry 1 1/1 l.	s anticipat on and com sing (95.34 /17/20/20.	ed activiti pleted. M + 5.0 = 1 Depth of	ies and weight of Ar. Beck and Jon 100.34 ft) and Dr f casing 100.34	of Dp (14 #/ft) nes travel to E p 96.13 ft + 5 - (3.4 + 1.3) =	No-questions or concerns SE yard to decon DP 0 = 101.13 ft). Set up hammer. 95.64 ft bgs.	
FROM 07:00 07:56 08:58 09:02	TO 07:56 08:58 09:02	(07:25). Trip Dp in Drive cas Disconne	ety meeting. Equipment into boring. ing Blows dict drive head	nspection Add cas ry 1 1/1 l.	s anticipat on and com sing (95.34 /17/20/20.	ed activiti pleted. M + 5.0 = 1 Depth of	ies and weight of Ar. Beck and Jon 100.34 ft) and Dr f casing 100.34	of Dp (14 #/ft) nes travel to E p 96.13 ft + 5 - (3.4 + 1.3) =	No-questions or concerns SE yard to decon DP 0 = 101.13 ft). Set up hammer. 95.64 ft bgs.	
FROM 07:00 07:56 08:58 09:02	TO 07:56 08:58 09:02	Trip Dp is Drive cas Disconne The TX T Area secu	ety meeting. Equipment into boring. ing Blows di ct drive head ank Farm is	Add cas ry 1 1/1 l. shut do	ss anticipate on and comsing (95.34/17/20/20.	ed activitive pleted. Moreover 1 to 1 t	ies and weight of Ar. Beck and Jon 100.34 ft) and Dr f casing 100.34	f Dp (14 #/ft) nes travel to E p 96.13 ft + 5 - (3.4 + 1.3) =	No-questions or concerns SE yard to decon DP 0 = 101.13 ft). Set up hammer. 95.64 ft bgs. p to within working parameters	
FROM 07:00 07:56 08:58 09:02	TO 07:56 08:58 09:02 09:06	(07:25). Trip Dp is Drive cas Disconne The TX T Area secu	ety meeting. Equipment into boring. ing Blows di ct drive head ank Farm is	Add cas ry 1 1/1 l. shut do	is anticipated and community of the state of	ed activitive pleted. Moreover 1 to 1 t	ies and weight of Mr. Beck and Jon (00.34 ft) and Dr f casing 100.34 ft e wind is not extable and casing	f Dp (14 #/ft) nes travel to E p 96.13 ft + 5 - (3.4 + 1.3) =	No-questions or concerns SE yard to decon DP 0 = 101.13 ft). Set up hammer. 95.64 ft bgs. p to within working parameters	
FROM 07:00 07:56 08:58 09:02	TO 07:56 08:58 09:02 09:06	(07:25). Trip Dp is Drive cas Disconne The TX The Area secution The BSE	ety meeting. Equipment into boring. ing Blows di ct drive head ank Farm is red. crew will we	nspection Add cas ry 1 1/1 I. shut do ork on c	is anticipated and communication and communication (95.34)/17/20/20. Sown due to documentate the communication whole	ed activitive pleted. Moreover 1 to 1 t	ies and weight of Mr. Beck and Jon (00.34 ft) and Dr f casing 100.34 ft e wind is not extable and casing	f Dp (14 #/ft) nes travel to E p 96.13 ft + 5 - (3.4 + 1.3) =	No-questions or concerns SE yard to decon DP 0 = 101.13 ft). Set up hammer. 95.64 ft bgs. p to within working parameters	
FROM 07:00 07:56 08:58 09:02	TO 07:56 08:58 09:02 09:06	(07:25). Trip Dp is Drive cas Disconne The TX The Area secution The BSE	ety meeting. Equipment into boring. ing Blows di ct drive head ank Farm is ired. crew will we	nspection Add cas ry 1 1/1 I. shut do ork on c	is anticipated and communication and communication (95.34)/17/20/20. Sown due to documentate the communication whole	ed activitive pleted. Moreover 1 to 1 t	ies and weight of Mr. Beck and Jon (00.34 ft) and Dr f casing 100.34 ft e wind is not extable and casing	f Dp (14 #/ft) nes travel to E p 96.13 ft + 5 - (3.4 + 1.3) =	No-questions or concerns SE yard to decon DP 0 = 101.13 ft). Set up hammer 95.64 ft bgs. p to within working parameters	
FROM 07:00 07:56 08:58 09:02	TO 07:56 08:58 09:02 09:06	(07:25). Trip Dp is Drive cas Disconne The TX The Area secution The BSE	ety meeting. Equipment into boring. ing Blows di ct drive head ank Farm is ared. crew will we	nspection Add cas ry 1 1/1 I. shut do ork on c	is anticipated and communication and communication (95.34)/17/20/20. Sown due to documentate the communication whole	ed activitive pleted. Moreover 1 to 1 t	ies and weight of Mr. Beck and Jon (00.34 ft) and Dr f casing 100.34 ft e wind is not extable and casing	f Dp (14 #/ft) nes travel to E p 96.13 ft + 5 - (3.4 + 1.3) =	No-questions or concerns SE yard to decon DP 0 = 101.13 ft). Set up hammer. 95.64 ft bgs. p to within working parameters	
FROM 07:00 07:56 08:58 09:02	TO 07:56 08:58 09:02 09:06	(07:25). Trip Dp is Drive cas Disconne The TX The Area secution The BSE	ety meeting. Equipment into boring. ing Blows di ct drive head ank Farm is ared. crew will we	nspection Add cas ry 1 1/1 I. shut do ork on c	is anticipated and communication and communication (95.34)/17/20/20. Sown due to documentate the communication whole	ed activitive pleted. Moreover 1 to 1 t	ies and weight of Mr. Beck and Jon (00.34 ft) and Dr f casing 100.34 ft e wind is not extable and casing	f Dp (14 #/ft) nes travel to E p 96.13 ft + 5 - (3.4 + 1.3) =	No-questions or concerns SE yard to decon DP 0 = 101.13 ft). Set up hammer 95.64 ft bgs. p to within working parameters	
FROM 07:00 07:56 08:58 09:02 09:06	TO 07:56 08:58 09:02 09:06	(07:25). Trip Dp ii Drive cas Disconne The TX T Area secu The BSE Mr. Beck Mr. Jones	ety meeting. Equipment into boring. ing Blows di ct drive head ank Farm is ared. crew will we	nspection Add cas ry 1 1/1 I. shut do ork on c	is anticipated and communication and communication (95.34)/17/20/20. Sown due to documentate the communication whole	ed activitive pleted. Note that the pleted is the pleted. In the pleted is the pleted in the pleted	ies and weight of Mr. Beck and Jon 100.34 ft) and Dr f casing 100.34 ene wind is not extable and casing	of Dp (14 #/ft) the travel to E travel to dro decontaminate	No-questions or concerns SE yard to decon DP 0 = 101.13 ft). Set up hammer 95.64 ft bgs. p to within working parameters	

DRILL	ING AND	SAMPI	ING (PE	RCUS	SSION) D	AII.V V	WORK REC	ORD	Page 1 of 1		
WELL I.D.		DAMI D	WELL NUM				EPORT NUMBE	G7 335-96.5577	DATE: May 22, 2002		
CONTRAC	T NUMBER:	8248-55		STAL	T CARD NO	500630		PIC MODEL	Wednesday WO: SIMCO 5000 (Rig 106)		
			on Daily Saf		eting. Trip Di	and the same	RENCE: DESN	DFSNW-DOW-006, LOCATION: TX Tank Fa			
out of bori		ment mopeet	on Duny our	ory mo	Anig. Trip D	Rev.			West Vanit Tank Tank, 200		
REFEREN	CE MEASUR	ING POINT:	Steel Plate				TOTAL SHIFT	FOOTAGE:	0.0 ft.		
CONSTR	UCTION DE	SCRIPTIO	N: N/A				BORING DE		START TIME: 0700		
CASING SIZE	DEPTH	TYPE CASING	DRIVE PO DIMENS	ION	START DEPTH	END DEPTH	START: 95.6 END: 95.6	047.0AA	END TIME: 1630 CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5		
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	95.64 ft	95.51 ft	-				
DOCUMENTED DOWNTIME CASING SUMMARY								PERSONNEL:			
				Botte	om of 7 "OI	casing (start of shift) =	95.64 ft.	OPERATOR: KC Olson		
Down due to wind -6.5 hrs.							end of shift) =		DL Curry/DE Morris		
	n	0.15 (0.50 a					(end of shift) =		WA LICENSE #: 1217		
WEATHER CONDITIONS (373-2716)							$\frac{\text{Constant} = 3.4}{\text{SUMMARY}}$	It.)	OTHER: D Skoglie		
07:55: Wi	nd W @ 16	mph (gusts	to 26			AMI LL	K Johnson (Optr/PIC)				
throughout day); temperature 57F,						N/A	K Hartelius (HPT) K. Flower				
Barometric pressure 29.23, Humidity 44%.							S. Snook/R. Sharpe (NPO)				
TI	ME										
FROM	TO				DESCRI	PTION O	F OPERATIO	VS/REMARKS			
07:00	07:45	Personnel	signed in o	n Worl	Package. I	Equipmen	t inspection wa	s completed.			
07:45	08:05	Conduct of	laily safety i	neetin	g briefing. I	Discuss ar	ticipated activi	ties. No ques	stions or concerns.		
08:05	08:38		casing 0.13 veyed out of			5.51 ft. bg	gs. Disconnect	Rev. 1 drive h	ead for further modifications.		
08:38	09:30	Start air n	nonitors. Tr	ip Dp	out of boring	g. Wind in	ncreasing.				
09:30	09:45		it down due	to win	d. Secure sit	e.					
09:45	10:15	Lunch									
10:15	16:30	Modify m	anipulator h	and fo	r gripping m	ore surfac	ce area. Modif	y deck cover.			
				_							
							_	_			
REPORT	BY: DE Sko	nlie				DEW	EWED BY: MO	Gordnor			
	ield Team L		· Skog			27,532,552			DATE: 8-K-02		
IIILE. I	icid i caili L	rau 1 c	(1 -		IIII	E: Project Ma	uager	DATE: 8-13-62		

DRILL	ING AND	SAMPL	ING (PE	RCUS	SSION) D	AILY	woı	KK F	REC	ORD		Page 1 of 2
WELL I.D.	: C3832		WELL NUM	BER:	N/A		REPOR	TNU	МВЕН	: 18		DATE: May 23, 2002 Thursday
CONTRAC	T NUMBER:	8248-55		STAR	RT CARD NO): S00630	800630 RIG MODEL/NO: SIMCO 5000 (Rig 1					D: SIMCO 5000 (Rig 106)
	: Daily equipro Dp and obta			ety mee	eting. Drive	RE		CE: D	FSNV	7-DOW-00		LOCATION: TX Tank Farm, 20 West
REFEREN	CE MEASUR	ING POINT:	Steel Plate				TO	TAL S	HIFT	FOOTAGE	: 8.3	ft.
CONSTRU		BORING DEPTH:						START TIME: 0700				
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE PO	경기가 가는 그 있는 전환보기에서 가게 되었다.		END DEPTH				95.64 ft 103.94 ft	- 10	END TIME: 1630 CONTRACTOR TIME: 0.5 FOTAL TIME: 9.5
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	95.51 ft	103.94					- 1	
DO	CUMENTED	DOWNTI	ME		(ft CASING	SUMM	ARY				PERSONNEL:
200	JOINDIVIDE	20//////	, and	Botte	om of 7 " O				ft) =	95.51 ft.	_	OPERATOR: KC Olson
Down time due to HPT support 3 hrs Bottom of 7" OD											1	OL Curry/DE Morris
					ng (7 in OD					1.0 ft.		WA LICENSE #: 1217
WEATHE	R CONDITI	ONS (373-2	2716)	Tota	l Casing = 1					t.)		OTHER: D Skoglie
07:55: Wi	nd E@ 5 m	nph: temper	rature 53F.	-		SAMPLE	SUMI	IAKI	<u> </u>			C Johnson (Optr/PIC)
	c pressure 2				S02046-16	(#13), 9	5.64 –	97.04	(11:	45 hrs)		C Hartelius (HPT) C. Flower/R. Sharpe
						(/)						C. Young/F. Hall
TI	ME				D.FG.GD	IDMION	00.01		mro.v	C/DELCAD		
FROM	TO		V		DESCR	IPTION	OF OI	EKA	TION	S/REMAR	KS	
07:00	07:40	authorize		safety	meeting w							ng 8 –11, no back-up was der work, noise monitoring
07:40	10:20	hydraulic on upsets	line wrap w	as plac	ed around t	he rotary	y head'	s hyd	raulic	lines to he	elp el	mast chain pulleys. An iminate rubbing and catchin 30. A review and sign-off o
		the work was discu	package (inc	luding ing wa	the AHA)	allowed	access	to the	work	location.	A re	view of the work location work pemit. Work was
10:20	10:35		arrived on l									
10:35	11:05		ampler/Dp i									
11:05	11:08		sampler (95								nt 5/5	/2.
11:08	12:00	-	ample out o									
12:00	12:30	Lunch	The Oile	r chang	ges oil in the	e WINC	O gene	rator	while	on lunch b	oreak	
12:30	13:37				-							tal 106.15 ft.).
13:37	13:47											BC 17/28/33/31/16.
13:47	14:34	Disassem	ble head. A	dd casi	ing 3 ft (108	3.34 ft) a	nd Dp	3 ft (1	109.1	ft.). Set	up he	ad.
14:34	14:36	Drive cas	ing 108.34 -	- (3.4 +	1.0) = 103	.94 ft bg	s. BC	27/29	/28.	Secure site	e.	
14:36	16:30	Rebuild s	lip for 4.5 in	ch Dp	. Samples s	hipped	to PNN	L lab	orato	ry.		
14.50		••				DE	VIEW	D DI	1 110	Gardner		
CONTRACTOR CONTRACTOR	BY: DE Sko	glie				KE	VIEWE	DBI	: MG	Gardner		

Duratek	Duratek Federal Service	es, Inc., Northwest	t Operations
SA	MPLE FORM	FAR No. 18	Page 2 of 2
Sample No. SO	2046 Sample Tracking No. 16		
	16 to 97		
(1) 3.4 top of rig fl	oor above ground		8
(2) <u>4.7</u> casing stick			
Csg Total (3) 100,34	- Stickup (2) $4.7 = TD(4) 95.64$		L
Does not include drive	e head		(5), (3
Backpull stickup (2+5) 4,83		Rig Floor
Sample depth (4) 9	5.64 to (4+6) 97.04 (1.4)		(2) 4. 7 (1) 3. 4
	Blow Count (.4 FT	Cround Level	1027
	.5 ft 1 ft 1,5 ft DEA		
Start Time			
II:05 End Time	5 5 2		
11:08			
P	Full		
Estimated Recovery:	POI		(3; <u>100.</u> 34
Remarks:			13,700
can ole	in barnel @ 11:45 hr.	(4) 95.64	
J *			
1 = Top of rig floor a	acus ground	(1) 97.04	
	ove ground 1 + measure from floor to	\(\(\frac{1}{2}\)	
top csg = SU	<u>-</u> ::		
3 = Total csg length 4 = Depth of csg = To	stal Depth (TD)		4
Total csg – SU ⁽²⁾			(5) .13
5 = Casing back pull			\
6 = Sampler drive dis 7 = Total depth of dri		1(6) 1.4	
7 – Total depth of dif	ven sample – 4 + 0		-1.7
PREPARED BY (Please)	orint):	REVIEWED BY (Please pri	nt): MGGARAJER
TITLE:	ain E DATE: 05/23/02	TITLE: Managor	DATE:
SIGNATURE:	and Shoglie	SIGNATURE: Mela	8-15-02
		l	

DRILL	ING AND	SAMPL	ING (PE	RCUS	SSION) D	AILY	WORK RI	ECORD	Page 1 of 3	
WELL I.D.	: C3832		WELL NUM	BER:	N/A		REPORT NUM	BER: 19	DATE: May 28, 2002 Tuesday	
CONTRAC	T NUMBER:	8248-55		STAR	START CARD NO: S00630			RIG MODEL	/NO: SIMCO 5000 (Rig 106)	
PURPOSE Drive casi	: Daily equiping, Trip Dp an	nent inspecti d obtain sam	ion. Daily/We ple S02046-1				FERENCE: DFS v. 0	SNW-DOW-006,	LOCATION: TX Tank Farm, 200 West	
REFEREN	CE MEASUR	ING POINT:	Steel Plate		TOTAL SHIFT FOOTAGE: 7			7.44 ft.		
CONSTR	UCTION DE	SCRIPTIO	N: N/A				BORING I		START TIME: 0700	
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE PO		START DEPTH	END DEPT	OT .	03.94 ft 11.38 ft	END TIME: 1630 CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5	
7.0 " OD	NA NA	CS	Shoe, 7.5 "	OD	103.94 ft	109.66		11.50 11	(C. V. Friedlich and State, and Provinting Cons. Combet 11).	
DO	CUMENTED	DOWNTI	ME			CASING	SUMMARY		Personnel:	
	Bottom of 7 " OD casing (start of shift) = 103.94 ft.								Operator - Kcolson	
	N/A						(end of shift)		Dr Comy / DE Merris	
ur imir	n country	ONG (252 c		-			p (end of shift	Market and the Control of the Contro	WALIC #1217	
WEATHE	R CONDITI	ONS (373-2	2/16)	Tota			t. (Constant 3.4 E SUMMARY	11.)	Other DE Skeelie	
07:23: Wind W @ 10 mph (gusts to 15);									K Johnson oppr-Pic	
	re 63F, Baro midity 62%		ssure			100	4) 103.94 – 10	_	K Hartelius - HPT K Florer / R. SHarpe	
29.13, Mu	midity 62%	Sample: S02046-18 (#15) 109.91 – 111.38 @ 15:20						1.38 @ 15:20	Kyang / F. Heli	
	ME				DESCR	IPTION	OF OPERATI	ONS/REMARKS	2	
FROM	ТО				All and distant					
07:00	07:30								lo deficiencies on equipment.	
07:30	07:54 09:28	194 P. P. 195		Acres Carrell	Part Control (Control	15-10-10-10-10-17			Work Permit and process.	
07:54 09:28	10:15	Set up har	mmer. Drive	e samp	le 103.94 –	105.36	ft. (S02046-17) Blows 3/3/2.(0	4 hrs). Trip sampler in boring. 19:29 – 0930). Sample in drum	
							he bottom of th		10 10 10 10 10 10 10 10 10 10 10 10 10 1	
10:15	10:42		casing (3 ft)				ak 10:33 – 10:4			
10:42	11:37							and Dp 5.0 ft (1		
11:37	12:00	drive head		imer.	Drive casing	g (11:44	- 11:49) to a c	lepth of 105.84	ft bgs. Blows 16/18. Remove	
12:00	12:30	Lunch					California Parcella per Contact			
12:30	13:04	enlarged t	his evening.	Add	casing 4.0 ft	t (total	114.34 ft) and	Dp 4.0 ft (total 1		
13:04	13:20		ad. Drive ca e drive head		109.91 ft b	ogs (114	.34 – [3.4 + 1.0	03] = 109.91 ft ((13:09). BC 25/31/32/33.	
13:20	13:57	Back pull	casing 0.25	ft. Ca	sing depth	109.66 f	t. bgs. Trip ou	t Dp/drive tip.		
13:57	14:31		oler in borin		-			40 20 20		
14:31	14:33	Drive san formation		- 111.3	38 (1.47 ft).	Blows	5/4/3. Sample	in drum @ 15:2	20 hrs. Sample pulled out of	
14:33	15:33	Sampler i	n drum @ 1	5:20 h	rs. Ship san	nples to	PNNL laborat	ory. Back pull o	casing (4 ft).	
15:33	16:30		te. Load dri	ve head	ds to enlarge	pin ho	les.			
	BY: DE Sko	^ ^				RE	EVIEWED BY:	MG Gardner		
THE P	ield Team L	00/4	1 1			TITLE: Project Manager DATE: 8-15-02				
SIGNAT		941 -1	E. Sko	Á	•	173.00	GNATURE:	DATE: 8-13-02		

Duratek	Duratek Federal Service	es, Inc., Northwe	st Operations
SA	MPLE FORM	FAR No. 19	Page 2 of 3
Sample No. SO2	2046 Sample Tracking No. 17		
Target Depth 104	4 to 105		
(1) 3,4 top of rig flo	oor above ground		
(2) 4.4 casing sticks			
Csg Total (3) 168,34	- Stickup (2) 4,4 = TD (4) 103,94		c
Does not include drive		1	(5)_25
Backpull stickup (2+5)			Rig Floor
Sample depth (4) /0,	3.94 to (4+6) 105, 36 (1.42)		(2) 4.4 (1) 34
			(1)
	Blow Count 1.42 FT	Ground Level	18/18/
	.5 ft 1 ft 1.5 ft DE 4	-	
Start Time 0929	3 3 2		
End Time	5 5 2		
0930			
Estimated Recovery:	FUIL		
Estimated Recovery:	FOR		(3, 108.34
Remarks:			(5,700
Cample	bbl @ 10:15 hrs.	(4) 103.94	
JAMPIE IA	501 & 10.13		
1 = Top of rig floor ab	ove ground	(1) 105.36	
2 = Stickup of csg abo	ve ground 1 + measure from floor to		
top csg = SU			
3 = Total csg length 4 = Depth of csg = To	tal Denth (TD)		150 120
Total csg – $SU^{(2)}$ =	: TD		(5) ,21
5 = Casing back pull		1,	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
6 = Sampler drive dist7 = Total depth of drive		(6) 7.5	14
, Total acpui of all	on outpie 4 0	• -	
₽.			
PREPARED BY (Please p	rînt):	REVIEWED BY (Please p	orint): MCGARAJER
TITLE:	and ¿DATE: 5/28/02	SIGNATURE: ploba	DATE:
SIGNATURE:	and shocke	SIGNATURE: WILL	0 8-15-00

Duratek	Duratek Federal Service	es, Inc., Northwes	t Operations
SA	MPLE FORM	FAR No	Page 3 of 3
Sample No. 502	046 Sample Tracking No. 18		
Target Depth 110	to [1]		
(1) <u>3.4</u> top of rig flo	or above ground		17
(2) 4.43 casing sticku			
Csg Total (3) 1/4.34	- Stickup (2) $4.43 = TD(4)_{109.91}$		
Does not include drive	head		(5) , 25
Backpull stickup (2+5)			Rig Floor
Sample depth (4) 10	9.91 to (4+6) /// 38 (1.47)		12/1/43
			(2) <u>4.43</u> (1) <u>3.4</u>
	Blow Count 1.47 FT	Ground Level	
	.5 ft 1 ft 15 ft 0 64		
Start Time	5 4 3		
/4:31 End Time	3 7 3		
14:33			
Estimated Recovery:	FULL		(5) 114.34
Remarks:			(); // /·
62. 1.	, bbl @ 15:20 hrs.	(4) 109.91	
SAMPLE IT	, w/ E /3		
	mantae contraction of	(1) 111.38	
1 = Top of rig floor ab	ve ground 1 + measure from floor to	(1) (1)	
top csg = SU	Second 1 mondate from floor to		
3 = Total csg length	I D. J. (TD)		
4 = Depth of csg = Tot $Total csg - SU^{(2)} =$			(5) . 25
5 = Casing back pull			\ <u></u>
6 = Sampler drive dista		(6) 1.47	
7 = Total depth of driv	en sample = 4 + 6	\ \V \	-1.1
PREPARED BY (Please pr	rint):	REVIEWED BY (Please pri	Int) MAGARNIED
TITLE:	-1 c DATE: 1 5/28/02	TITLE: Manage	DATE:
SIGNATURE:	int: 5/28/02	SIGNATURE: plocas	2 8-15-02
DFSNW-WS-00	U	1	

DRILI	ING AND	SAMPL	ING (PE	RCUS	SSION) D	AILVX	VORK REC	ORD	Page 1 of 1	
WELL I.D			WELL NUM				EPORT NUMBE		DATE:May 29, 2002 Wednesda	
CONTRA	CT NUMBER:	8248-55		T	RT CARD NO	The second second second	DI 01(1 1 (01/12)2		/NO: SIMCO 5000 (Rig 106)	
	E: Daily equip		on. Daily Sat	20070070		REFE Rev. 0	LOCATION: TX Tank Farm, 20 West			
REFEREN	NCE MEASUR	ING POINT:	Steel Plate				TOTAL SHIFT	FOOTAGE: 0	.0 ft.	
CONSTR	RUCTION DE	SCRIPTIO	V: N/A	BORING DEPTH:					START TIME: 0700	
CASING SET- TYPE DRIVE IN CASING DIMEN					START DEPTH	END DEPTH	START: 111.	.38 ft 38 ft	END TIME: 1630 CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5	
7.0 " OD		CS	Shoe, 7.5 "	OD	109.66 ft	109.66				
DO	CUMENTEL	DOWNTI	MF.	Т	-	ft. CASING SI	JMMARY			
20	COMBINIE	Bottom of 7" OD casing (start of shift) = 109.66 ft.							PERSONNEL: OPERATOR: KC Olson	
Down to	ime due to wi	nd 9 hrs.					end of shift) =		DL Curry/DE Morris	
				Casi	ng (7 in OD) stick up	(end of shift)	1.03 ft.	WA LICENSE #: 1217	
WEATHE	ER CONDITI	ONS (373-2	716)	Tota			Constant 3.4 ft	.)	OTHER: D Skoglie	
07.00.11					S	SAMPLE S	SUMMARY		K Johnson (Optr/PIC)	
17.23. W		& mnh (mic	ets to 25).				K Hartelius (HPT)			
	/ind NW @ 1			1		02020			K Hartelius (HPT)	
temperati	ure 69F, Baro	metric pres				N/A	Ç		K Hartelius (HPT) K. Flower/R. Sharpe	
temperati		metric pres				N/A	C		Carlotte and Charlette and Cha	
temperati 29.46, Hi	ure 69F, Baro	metric pres			PEGGE				K. Flower/R. Sharpe K. Young/F. Hall	
temperati 29.46, Hi	ure 69F, Baro umidity 65%	metric pres			DESCR		PF OPERATION	NS/REMARKS	K. Flower/R. Sharpe K. Young/F. Hall	
temperati 29.46, Hu	ure 69F, Baro umidity 65%	ometric pres	sure	Discu		IPTION O	F OPERATIO		K. Flower/R. Sharpe K. Young/F. Hall	
temperati 29.46, Hi	rure 69F, Baro umidity 65%	Daily safe	sure		ss anticipate	IPTION O			K. Flower/R. Sharpe K. Young/F. Hall	
TROM 07:20	ure 69F, Baro umidity 65% TIME TO 07:20	Daily safe Conduct e	ety meeting.	nspection nded du	ss anticipate on and main ue to wind.	IPTION O ed operationtenance. However,	ons. No question	ons or concern	K. Flower/R. Sharpe K. Young/F. Hall	
temperati 29.46, Hi	TO 07:20 08:15	Daily safe Conduct e	ety meeting.	nspection nded du	ss anticipate on and main ue to wind.	IPTION O ed operationtenance. However,	ons. No question	ons or concern	K. Flower/R. Sharpe K. Young/F. Hall	
TROM 07:00 07:20 08:15 12:00	TIME TO 07:20 08:15 09:08	Daily safe Conduct e In hole we up for the Lunch Tank Farr	ety meeting. Equipment in ork is suspen next two counts has shut	nspection nded du nnection down d	ss anticipate on and main ue to wind. ons. The dri	IPTION O ed operation stenance. However, ve head m	ons. No question the Tank Farm	has not shut orks fine.	K. Flower/R. Sharpe K. Young/F. Hall ss. down. The drive heads were so	
T. FROM 07:00 07:20 08:15	TIME TO 07:20 08:15 09:08 12:30	Daily safe Conduct e In hole we up for the Lunch Tank Farr	ety meeting. Equipment in ork is suspen next two comes has shut of PIC attends	nspection nded du nnection down d	ss anticipate on and main ue to wind. ons. The dri	IPTION O ed operation stenance. However, ve head m	ons. No question the Tank Farm	has not shut orks fine.	K. Flower/R. Sharpe K. Young/F. Hall	
T. FROM 07:00 07:20 08:15 12:00	TIME TO 07:20 08:15 09:08 12:30	Daily safe Conduct e In hole we up for the Lunch Tank Farr up base.	ety meeting. Equipment in ork is suspen next two comes has shut of PIC attends	nspection nded du nnection down d	ss anticipate on and main ue to wind. ons. The dri	IPTION O ed operation stenance. However, ve head m	ons. No question the Tank Farm	has not shut orks fine.	K. Flower/R. Sharpe K. Young/F. Hall ss. down. The drive heads were so	
T. FROM 07:00 07:20 08:15 12:00	TIME TO 07:20 08:15 09:08 12:30	Daily safe Conduct e In hole we up for the Lunch Tank Farr up base.	ety meeting. Equipment in ork is suspen next two comes has shut of PIC attends	nspection nded du nnection down d	ss anticipate on and main ue to wind. ons. The dri	IPTION O ed operation stenance. However, ve head m	ons. No question the Tank Farm	has not shut orks fine.	K. Flower/R. Sharpe K. Young/F. Hall ss. down. The drive heads were so	
T. FROM 07:00 07:20 08:15 12:00	TIME TO 07:20 08:15 09:08 12:30	Daily safe Conduct e In hole we up for the Lunch Tank Farr up base.	ety meeting. Equipment in ork is suspen next two comes has shut of PIC attends	nspection nded du nnection down d	ss anticipate on and main ue to wind. ons. The dri	IPTION O ed operation stenance. However, ve head m	ons. No question the Tank Farm	has not shut orks fine.	K. Flower/R. Sharpe K. Young/F. Hall ss. down. The drive heads were so	
T. FROM 07:00 07:20 08:15 12:00	TIME TO 07:20 08:15 09:08 12:30	Daily safe Conduct e In hole we up for the Lunch Tank Farr up base.	ety meeting. Equipment in ork is suspen next two comes has shut of PIC attends	nspection nded du nnection down d	ss anticipate on and main ue to wind. ons. The dri	IPTION O ed operation stenance. However, ve head m	ons. No question the Tank Farm	has not shut orks fine.	K. Flower/R. Sharpe K. Young/F. Hall ss. down. The drive heads were so	
T. FROM 07:00 07:20 08:15 12:00	TIME TO 07:20 08:15 09:08 12:30	Daily safe Conduct e In hole we up for the Lunch Tank Farr up base.	ety meeting. Equipment in ork is suspen next two comes has shut of PIC attends	nspection nded du nnection down d	ss anticipate on and main ue to wind. ons. The dri	IPTION O ed operation stenance. However, ve head m	ons. No question the Tank Farm	has not shut orks fine.	K. Flower/R. Sharpe K. Young/F. Hall ss. down. The drive heads were so	
TROM 07:00 07:20 08:15 12:00	TIME TO 07:20 08:15 09:08 12:30	Daily safe Conduct e In hole we up for the Lunch Tank Farr up base.	ety meeting. Equipment in ork is suspen next two comes has shut of PIC attends	nspection nded du nnection down d	ss anticipate on and main ue to wind. ons. The dri	IPTION O ed operation stenance. However, ve head m	ons. No question the Tank Farm	has not shut orks fine.	K. Flower/R. Sharpe K. Young/F. Hall ss. down. The drive heads were so	
temperative 29.46, Hu T. FROM 07:00 07:20 08:15 12:00 12:30	TIME TO 07:20 08:15 09:08 12:30 16:30	Daily safe Conduct of In hole we up for the Lunch Tank Farr up base. Area Secu	ety meeting. Equipment in ork is suspen next two comes has shut of PIC attends	nspection nded du nnection down d	ss anticipate on and main ue to wind. ons. The dri	IPTION O ed operation stenance. However, ve head m wind. The (PM).	ons. No question the Tank Farm codification works a crew will work	has not shut or rks fine.	K. Flower/R. Sharpe K. Young/F. Hall ss. down. The drive heads were so	
temperatic 29.46, Hu T. FROM 07:00 07:20 08:15 12:00 12:30	TME TO 07:20 08:15 09:08 12:30 16:30	Daily safe Conduct of In hole we up for the Lunch Tank Farr up base. Area Secu	ety meeting. Equipment in ork is suspen next two comes has shut of PIC attends	nspection nded du nnection down d	ss anticipate on and main ue to wind. ons. The dri	IPTION O ed operation itenance. However, ve head m wind. The (PM).	the Tank Farm odiffication work of crew will work	has not shut or rks fine.	K. Flower/R. Sharpe K. Young/F. Hall ss. down. The drive heads were s connection and drive head set	
temperatic 29.46, Hu T. FROM 07:00 07:20 08:15 12:00 12:30	TO 07:20 08:15 09:08 12:30 16:30 16:30 FBY: DE Skor	Daily safe Conduct e In hole we up for the Lunch Tank Farr up base. Area Secu	ety meeting. Equipment in ork is suspen next two comes has shut of PIC attends	nspection nded du nnection down d	ss anticipate on and main ue to wind. ons. The dri	PTION O ed operation atenance. However, ve head m wind. The PM). REVI	ons. No question the Tank Farm codification works a crew will work	has not shut or the fine.	K. Flower/R. Sharpe K. Young/F. Hall ss. down. The drive heads were s	

DRILL	ING AND	SAMPL	ING (PE	RCUS	SSION) D	AILY	Z W	ORK REC	ORD	Page 1 of 2		
WELL I.D			WELL NUM					PORT NUMBE	INCOVERED SAD	DATE: May 30, 2002 Thursday		
A PROCESSION CONTRACTOR	CT NUMBER:	8248-55	W BBB IVOIS	1	START CARD NO: S00630 RIG MODEL					NO: SIMCO 5000 (Rig 106)		
	: Daily equipr		ion Daily Saf				_	RENCE: DFSN		LOCATION: TX Tank Farm, 20		
	sample (S020						ev. 0		Y-DOW-000,	West		
REFEREN	REFERENCE MEASURING POINT: Steel Plate						TOTAL SHIFT FOOTAGE: 3.8					
CONSTR	UCTION DE	N: N/A					BORING DEI START: 111.		START TIME: 0700 END TIME: 1630			
CASING SIZE	AT	TYPE CASING	DRIVE PO		START DEPTH	END DEPT				CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5		
7.0 " OD	NA DEPTH	CS	Shoe, 7.5 "	NEW WILLS	109.66 ft	114.04		END: 115.	2 π			
DO	CUMENTED	DOWNTI	ME.			ft ASING	SU	MMARY		PERGOVALE		
20		20.711111		Botto				tart of shift) =	109.66 ft.	PERSONNEL: OPERATOR: KC Olson		
N/A Bottom of 7" OD										DL Curry/DE Morris		
							_	end of shift) =		WA LICENSE #: 1217		
WEATHE	R CONDITI	ONS (373-2	2716)	Total				Constant = 3.4	ft.)	OTHER: D Skoglie		
07.27. W	ind SE @ 11	mah (muste	to 15):			SAMPLI	E S	UMMARY		K Johnson (Optr/PIC)		
	ind SE @ 11 ire 60F, Baro			Sam	mla: S02044	5 10 (#1	16)	(113.77 – 115.	2) @ 12-10	K Hartelius/Andy (HPT)		
	midity 59%			Sain	pic. 302040)-17 (#1	10) ((113.77 – 113.	2) @ 12.10	K. Flower/S. Snook		
										K. Young/F. Hall		
	ME				DESCR	IPTION	I OI	OPERATION	S/REMARKS			
FROM 07:00	TO 07:39	Conduct	laily cafaty	naatin	and discus	o antici	inat	ad activities. N	In amostions o	r concerns (07:27) Conduct		
07.00	07.59		t inspection.				фан	ou activities. 1	o questions o	Concerns (07.27) Conduct		
07:39	08:08	Trip Dp/t	ip into borin	g.								
08:08	08:25							116.16 ft) 08:2				
08:25	08:47	Drive cas: 119.16 ft)		8 = 110).96 ft bgs (08:28).	BC	20. Add casi	ng 3.0 (total 1	18.34 ft) and Dp 3.0 (total		
08:47	09:03									pull 0.17 ft. Blows 22/50/147.		
09:03	10:15		_	7	Mary the Salary and the salary	alle systems are re-	110000	SE personnel j				
10:15	11:10	Trip in sa half thrott). Set	-up hammei	r. Drive	e sai	mple 113.77 –	115.2 ft (11:0	03 – 11:10). Blows 13/21/36		
11:10	11:29	Grease ma	ast slid (met	al shav	ings are bei	ng gene	erate	ed).				
11:29	12:10	Trip samp	ole out of bo	ring. B	ack pull fir	st ft wit	th ja	cks. Sample i	n drum @ 12:	10 hrs.		
12:10	12:20	Load sam	ple and drur	n into s	ample truck	k. Samp	ple	will be shipped	to PNNL lab	oratory.		
12:20	12:59	lunch										
12:59	13:43	Back pull	and remove	3 ft se	ction of cas	ing. Ca	asin	g is pulling @	1,200 psig. W	rench slips are slipping.		
13:43	14:33	Trip Dp is	nto boring.									
14:33	15:30									pth of 114.04 ft bgs. Casing jacks for cleaning.		
		NOTE 1:	Mr. Sydnor	was co	ontacted (RI	EFUSA	L 1	00 – 120 blow	s per foot is co	onsidered refusal).		
15:30	16:30	Area secu	red. Slips c	leaned.								
REPORT	BY: DE Skog		•			RE	EVIE	EWED BY: MG	Gardner			
		•	E. Sko	520						DATE: SelCest		
			- 11				SIGNATURE: Mobal PATE: 8-15-02					

Duratek Duratek Federal Service	es, Inc., Northwest Operations
SAMPLE FORM	FAR No. 21 Page Z of Z
Sample No. 502046 Sample Tracking No. 19 Target Depth 1/4 to 1/5 (1) 3.4 top of rig floor above ground (2) 4.57 casing stickup above ground Csg Total (3) 1/8.34 - Stickup (2) 4.57 = TD (4) 1/3.77 Does not include drive head Backpull stickup (2+5) 4.74 Sample depth (4) 1/3.77 to (4+6) 1/5.2 (1.43) Blow Count 1.43 FT Start Time 1/3 /3 21 36 End Time 1/3 /0	(2) 4,57 (1) 3.4 Ground Leve
Estimated Recovery: Remarks: SAMPLE in 5bl @ 17:00 hrs. 1 = Top of rig floor above ground 2 = Stickup of csg above ground 1 + measure from floor to top csg = SU 3 = Total csg length 4 = Depth of csg = Total Depth (TD) Total csg - SU ⁽²⁾ = TD 5 = Casing back pull 6 = Sampler drive distance 7 = Total depth of driven sample = 4 + 6	(4) 113.77 (5) 17 (5) 17
PREPARED BY (Please print): TITLE: SIGNATURE: A and E Sho glue	REVIEWED BY (Please print): MG BARINER TITLE: Manager DATE: SIGNATURE: Mblead 8-15-02

DFSNW-WS-00_

DRILL	ING AND	SAMPL	ING (PEI	CUS	SSION) D	AILY	WORK	REC	CORD	Page 1 of 1	
WELL I.D	: C3832		WELL NUM	BER:	N/A		REPORT NUMBER: 22			DATE: May 31, 2002 Friday	
CONTRAC	CT NUMBER:	8248-55		STAR	T CARD NO	: S00630)		RIG MODEL	NO: SIMCO 5000 (Rig 106)	
	: Daily equipr 02046-20). Ca				ting. Attemp		FERENCE: I v. 0	DFSN	W-DOW-006,	LOCATION: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate							TOTAL	SHIFT	FOOTAGE: 0	.0 ft.	
CONSTR	UCTION DE	SCRIPTIO	N: N/A				BORIN		5 55550	START TIME: 0700	
CASING	SET- AT DEPTH	TYPE CASING	DRIVE PO		[[[[[[[] [[] [] [] [] [] [] [] [] [] []		· ·		.2 ft .47 ft	END TIME: 1530 CONTRACTOR TIME: 0.5 TOTAL TIME: 8.5	
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	114.04 ft	114.04	1,000,000,000,000		0.73 ft.)		
DO	CUMENTED	DOWNTI	ME		C	ASING	SUMMARY	,		PERSONNEL:	
Bottom of 7 " OD										OPERATOR: KC Olson	
	r PIC had to	leave site.			om of 7" OI					DL Curry/DE Morris	
	hr HPT	ONG (272.2	716		$\log (7 \text{ in OD})$ $Casing = 1$	£				WA LICENSE #: 1217	
WEATHE	R CONDITI	ONS (373-2	.710)	Total			SUMMAR		11.)	OTHER: RZ Steffler	
10:40: Wind NW @ 4-8 mph, temperature 71F, Barometric pressure 29.24, Humidity 28%.					one taken. I	5 10	S. Snook/K Johnson (Optr/PIC) Andy Wagnor (HPT) K. Flower K. Young/F. Hell (Operators)				
										K. Young/F. Hall (Operators)	
FROM	TO				DESCR.	IPTION	OF OPERA	4TIO	NS/REMARKS		
07:00	08:45		laily safety r					ties.	No questions o	or concerns. Conduct	
08:45	08:55	Mr. Sickle	e received de	ck trai	ining.						
08:55	09:05	Tailgate n	neeting. No	concer	rns.						
09:05	09:12		d to drive cas after attempt				. Ken Flow	ers d	etermined that	we had refusal. Casing depth	
09:12	10:30		nversations v Remove sect					attem	pted. Discuss	ion of feasibility of pulling	
10:30	11:30	Job shut d	lown. PIC h	ad to le	eave the site	e. ·					
11:30	12:30	No HPT o	on site to con	tinue v	working. Li	unch 11:	:30 - 12:00	1			
12:30	13:00	Debate fe sample.	asibility of h	aving (enough time	e to pull	a sample.	Not e	nough time to	trip out, trip in and pull the	
13:00	13:43	5.0 = 116	16 + 3.0 = 1 New stick up	19.16,	then drove	casing t	o refusal 11	4.24	ft bgs (20 Bl	3.0 = 118.34 (Inner) 121.16 – ows) Stick up = .9 feet. purposes. Casing depth at	
13:43	14:30	Pulled inn	ner casing.								
14:30	14:35		f hole tag (st Open hole 0.		e) 118.72 f	t (116.5	+ 2.27 - (3	.4 + 0	0.9) = 114.47 f	t bgs. Bore-hole ready for next	
14:35	14:45	Site secur	ed.								
REPORT	BY: RZ Stef	fler				RE	VIEWED B	<i>Y</i> : M	G Gardner		
	ield Team L									DATE: 8 C-4	
IIILE: I	Toru Tourn	cuu /				111	TITLE: Project Manager DATE: 8-15-6				

DRILLI	NG AND	SAMPL	ING (PE)	RCUS	SION) D	AILY	W	ORK REC	ORD	Page 1 of 2 Z		
WELL I.D.:	C3832		WELL NUM	BER: 1	N/A		RE	PORT NUMBE	R: 23	DATE: June 03, 2002 Monday		
CONTRAC	T NUMBER:	8248-55							RIG MODEL	L/NO: SIMCO 5000 (Rig 106)		
PURPOSE: (S02046-20	Daily equips [114.47 – 11	nent inspecti 5.89 ft)). To	on. Daily Saf tal depth 115	ety meet 89 ft bg	ety meeting. Sample REFERENCE: DFSNW-DOW-006, Rev. 0					LOCATION: TX Tank Farm, 20 West		
REFERENC	CE MEASUR.	ING POINT:	Steel Plate				.0 ft.					
CONSTRU	ICTION DE	SCRIPTIO	N: N/A		u u			BORING DE		START TIME: 0700		
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE PO		START DEPTH	END DEPT	8750	0 March 10 10 10 10 10 10 10 10 10 10 10 10 10	47 ft 10.73 ft.) 89 ft	END TIME: 1630 CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5		
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	114.04 ft	114.04	1					
DOC	UMENTED	DOWNTI	ME	Г		ASING	SU	MMARY		PERSONNEL:		
N/A Bottom of 7" OD								art of shift) =	114.04 ft.	OPERATOR: KC Olson		
					nd of shift) =		DL Curry/DE Morris					
Casing (7 in OD										WA LICENSE #: 1217		
WEATHER CONDITIONS (373-2716) Total Casing							_	Constant 3.4 ft UMMARY	.)	OTHER: D.Skoglie		
07:40: Wind SW @ 5- 15 mph , temperature 65F, Barometric pressure 29.24, Humidity 28%.					046-20 (11		R. Sharpe/K Johnson (Optr/PIC) K. Hartilius (HPT) K. Flower K. Young/F. Hall (Operators)					
TIM	ME				DESCRIPTION OF OPERATIONS/REMARKS							
FROM	TO							<u> </u>				
07:00	07:35		daily safety ce was revie		ng. Also, d	iscusse	d an	ticipated activ	rities for the da	ay. Last weeks safety		
07:35			quipment m				-					
	08:23	Tag botto	m of hole 11	6.5 + 2	.27 (correc	tion) –	(3.4	+ 0.9) = 114.	47 ft bgs.			
08:23	08:59		ler/ Dp into				_					
08:59	09:25	utilize cas	ing jacks an	d rotary	head to pu	ıll samp	oler	loose (utilize a		le). Sampler is very tight, o eliminate slippage).		
09:25	10:00		ampler out o									
10:00	10:10				regarding b	ore hole	e de	pth. Total dep	oth has been re	eached.		
10:10	10:50		n on planned		507 305.00							
10:50	11:32		nto bore hole				_					
11:32	12:02		ample is ship									
12:02	14:58 Trip Dp out of boring (breaking out 5 ft jo Ready site for geophysical logging on June						oints). Move drill pipe and equipment components to staging area. ne 04.					
14:58								Tank Farm a	nd set-up.			
		Mr. Meisr	ner will be a	ced toni	ight. Area	secured	l					
	BY: D.E. Sko eld Team RE:	pelie ead J www.	E. Shog	lie		TI	TLE	WED BY: MC	nager	DATE: 8-15-62		

Duratek Federal Service		
SAMPLE FORM	FAR No. <u>23</u>	Page <u>Z</u> of <u>Z</u>
Sample No. 502046 Sample Tracking No. 20		
Target Depth N/A to N/A		
(1) 3.4 top of rig floor above ground		
(2) 3.87 casing stickup above ground		
Csg Total (3) $1/8.34$ - Stickup (2) 3.87 = TD (4) $1/4.47$		c=_
Does not include drive head	1	(5) ,25
Backpull stickup (2+5) 4,12	-	Rig Floor
Sample depth (4) /14,47 to (4+6) //5,89 (1.42)		(2)3.87 (1)3.4
Blow Count 1.42 FT	Ground Leve	7
.5 ft 1 ft 1.5 ft 461-		
Start Time 6 11 20		
End Time		
Editor I Doggan		
Estimated Recovery: Full		(3) 118,34
Remarks:		(5) 100
1) SAMPLE in bble	(4) 114.47	
2) Due to refusal a sample was taken		
2) Due to refusal a sample was taken at the end of the bone hole.	-04	
1 = Top of rig floor above ground	(1) 115,89	
2 = Stickup of csg above ground 1 + measure from floor to top csg = SU		
3 = Total csg length		
4 = Depth of csg = Total Depth (TD)		(5),25
Total $csg - SU^{(2)} = TD$		VIII
5 = Casing back pull 6 = Sampler drive distance	(6) 1.4	Z
7 = Total depth of driven sample = 4 + 6	↓ 1	
•		1
PREPARED BY (Please print): TITLE: 6 0 3 02	REVIEWED BY (Please)	
TITLE: DATE: 6103(02	TITLE: Manager	DATE:
SIGNATURE. NIMO SILL	SIGNATURE: Melon	2

A-42

WELL I.D.		SAMIPL	ING (PE	RCUS	SION) D	AILY	WORK REC	CORD	Page 1 of 1	
CONTRAC	.: C3832		WELL NUM	BER: N	N/A		REPORT NUMBE	CR: 24	DATE: June 04, 2002 Tuesday	
CONTRAC	CT NUMBER:	8248-55		STAR	T CARD NO	: S0063)	RIG MODEL	/NO: SIMCO 5000 (Rig 106)	
PURPOSE bentonite s		y meeting. I	Downhole log	ging of borehole and REFERENCE: DFSNW-DOW-006, Rev. 0					LOCATION: TX Tank Farm, 20 West	
REFEREN	ICE MEASUR	ING POINT:	Steel Plate				TOTAL SHIFT	FOOTAGE: 0	.0 ft.	
CONSTR	UCTION DE	N: N/A	BORING DEPTH:					START TIME: 0700 END TIME: 1630		
CASING SIZE	AT		DRIVE PO	[TO TOTAL TO THE TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TO THE TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TO			.89 π 89 ft	CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5		
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	114.04 ft	114.04				
DO	CUMENTEL	DOWNTI	ME		C	ASING	SUMMARY		PERSONNEL:	
							g (start of shift) =		OPERATOR: KC Olson	
	N/A						g (end of shift) =		DL Curry/DE Morris	
WEATHE	R CONDITI	ONG (272.5	716)				up (end of shift) = t. (Constant 3.4 ft		WA LICENSE #: 1217	
WEATHE	K CONDITI	ONS (373-2	:/10)	Total			E SUMMARY	.)	OTHER: R. Steffler, K.Reynolds R. Sharpe/K Johnson (Optr/PIC)	
13:15: Wind NW @ 9 mph, temperature 82F, Barometric pressure 29.23, Humidity 31%.					amples tak	en. Ge	K. Hartilius (HPT) J. Meisner (Logger)			
TI	ME				DESCR	ΙΡΤΙΩΝ	OF OPERATIO	NS/DEMARKS		
FROM	TO		OTHER PORT						======================================	
07:30		drilling to	take place.	Geoph	ysical logg	ing only	7.	for the day. De	epth has been reached. No	
07:30	08:00						ole for logging.			
08:00	11:25	Adrian, ar		ylor) arr					es (Douglas Larson, Jim tonite staged inside farm for	
09:20		Operation	observers e	xited fa	rm.					
11:25	12:15						rity germanium d	etector.		
12:15	15:00	7.7.	ell with abo		e to a deptl	n of 27.	5			
15:15		Exited far	m. Site seco	ured.						
				-						
					00-					
						_				
	/									
REPORT	BY: R.Z. Ste	ffler				RE	VIEWED BY: MO	G Gardner		
	Field Team L URE:		4	_		Tľ	ΓLE: Project Ma	nager	DATE: 8-15-02	

DRILL	NG AND	SAMPL	ING (PE	RCU	SSION) D	AILY	WORK RE	CORD	Page 1 of 1		
WELL I.D.	C3832		WELL NUM	BER:	N/A		REPORT NUMB	ER: 25	DATE: June 05, 2002 Wednesday		
CONTRAC	T NUMBER:	8248-55		STAI	RT CARD NO	: S00630		RIG MODEL	/NO: SIMCO 5000 (Rig 106)		
PURPOSE bentonite s		y meeting. I	Downhole log	ging of	borehole and	REF Rev	FERENCE: DFSN . 0	IW-DOW-006,	LOCATION: TX Tank Farm, 200 West		
REFEREN	CE MEASUR	ING POINT:	Steel Plate				TOTAL SHIF	T FOOTAGE: 0	.0 ft.		
CONSTRU	JCTION DE	SCRIPTIO	N: N/A	BORING DEPTH:					START TIME: 0700		
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE PO				START: 11:	5.89 ft 5.89 ft	END TIME: 1630 CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5		
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	114.04 ft	114.04					
DO	CUMENTEL	DOWNTI	ME		-	ASING S	PERSONNEL:				
N/A WEATHER CONDITIONS (373-2716)					om of 7 " Ol om of 7" OI ng (7 in OD	D casing D casing	PERSONNEL: OPERATOR: KC Olson DL Curry/DE Morris WA LICENSE #: 1217				
WEATHE.	R CONDITI	ONS (373-2	2716)			CAMDI E	SUMMARY		OTHER: D. Skoglie, K.Reynolds		
15:34: Wind W @ 15 mph (gusts to 23 mph), temperature 84F, Barometric pressure 29.24, Humidity 19%.					samples tak		R. Sharpe/K Johnson (Optr/PIC) S. Snook (Optr) K. Hartilius (HPT) J. Meisner (Logger)				
	ME				DESCR	IPTION :	OF OPERATIO	NS/REMARKS			
FROM 07:00	TO 07:35	Conduct a	daily safety take place.	meeti	ing. Discuss	sed antic	pated activities		Depth has been reached. No		
07:35	15:30	Calibrated		ol. Log	gged well w	ith the 70		germanium det	ector to a depth of 97.0 ft.		
		Mr. Brow	n (DOE) site	repre	sentative ha	s raised t	he issue of the ate cannot be le	gate being oper oft opened, a sa	ned and not guarded. A Chain fety concern will be issued by		
			_	_							
					_						
		9									
								saddo CAC an			
DEDODE	3Y: D.E. Sk	oglje	E. Jho			REV	TEWED BY: M	G Gardner			

DKILI	ING AND	SAMPL	ING (PE	RCU	SSION) D	AILY	W	ORK REC	ORD	Page 1 of 1
WELL I.I			WELL NUM	BER:	N/A		REF	PORT NUMBE	200/20/20	DATE: June 06, 2002 Thursday
	CT NUMBER:				RT CARD NO		_			NO: SIMCO 5000 (Rig 106)
PURPOS bentonite	E: Daily Safet staging.	y meeting. I	Downhole log	ging of	borehole and		v. 0	ENCE: DFSN	W-DOW-006,	LOCATION: TX Tank Farm, 20 West
	VCE MEASUR						_		FOOTAGE: 0.	
CONSTR	UCTION DE	ESCRIPTIO.	N: N/A					BORING DE. START: 115.		START TIME: 0700 END TIME: 1630
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE PO		START DEPTH	END DEPTH			89 ft	CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	114.04 ft	114.04 ft	9			
DC	CUMENTEL	DOWNTI	ME		C		SUN	<i>MARY</i>	-	PERSONNEL:
				Botte	om of 7 " OI	casing	sing (start of shift) = 114.04 ft.			OPERATOR: KC Olson
	N/A							d of shift) =	DL Curry/DE Morris	
Casing (7 in OE) stick u	ıp (eı	nd of shift) =	WA LICENSE #: 1217	
WEATHER CONDITIONS (373-2716)							e eri	MALADY		OTHER: D. Skoglie, K.Reynolds
08:05: Wind W @ 11-17 mph, temperature						AMPLE	E SU	MMARY		R. Sharpe/ (Optr/PIC)
	ometric press			No	samples tak	en. Geo	ophy	sical logging	only.	S. Snook (Optr) K. Hartilius (HPT)
27%.								,	J. Meisner (Logger)	
7	IME								0	
FROM	ТО				DESCRI	PTION	OF	OPERATION	VS/REMARKS	
07:00	07:50	Conduct a topic is H	daily safety eat Stress.	and v	veekly safety iscussed wa	y meetin s WAC	ng. I 173-	Discussed ant -160-460 (we	ticipated activi	ties for the day. Weekly safety oning) requirements.
07:50	08:25		package on- ind on-site.	site. M	fr. Larson is	review	ing.	Mr. Sharpe	picked up Wor	k Pakage. Work package is
08:25	13:00	Calibratin	g logging to	ol. Lo	gged well w	ith the	70%	high purity g	germanium det	ector to total depth.
13:00	14:30	CHG Ope	erations Tim	e Out r	neeting was	held by	y Mr.	. Harold Synd	dor.	
14:30	16:30	Complete	4.5 X 7.0 s	ub for	back pulling	g operati	ions.	. Complete d	ocumentation.	
		Area secu	red.	×						
				-					_	
		L		-				WED BY: MO		
REPORT	DV. DE CL									

DRILL	ING AND	SAMPL	ING (PE	RCUS	SSION) D	AILY	V	VORK REC	CORD	Page 1 of 1
WELL I.D.	: C3832		WELL NUM	BER:	N/A		REPORT NUMBER: 27			DATE: June 10, 2002 Monday
CONTRAC	T NUMBER:	8248-55		STAR	RT CARD NO	: S0063	0		RIG MODEL	/NO: SIMCO 5000 (Rig 106)
PURPOSE	: Daily Safet	y meeting. I	Decommission	ning Op	erations.	1	EFE ev. (RENCE: DFSN'	W-DOW-006,	LOCATION: TX Tank Farm, 20 West
REFEREN	CE MEASUR	ING POINT:	Steel Plate					TOTAL SHIFT	FOOTAGE: ().0 ft.
CONSTR	UCTION DE	SCRIPTIO.	N: N/A					BORING DE		START TIME: 0700 END TIME: 1630
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE PO		START DEPTH	END DEPT	2000		CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5	
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	114.04 ft	114.04 ft	4			
DO	CUMENTEL	DOWNTI	ME		C		SU	<i>IMMARY</i>		PERSONNEL:
					om of 7 " OD casing (start of shift) = 114.04 ft.					OPERATOR: KC Olson
Do	ne load issu	e − 9 hr.		Bottom of 7" OD casing (end of shift) = 114.04 ft.						DL Curry/DE Morris
	D GOVERNM		Casing (7 in OD) stick up (end of shift) = 0.9 ft.						WA LICENSE #: 1217	
WEATHE	R CONDITI	2716)			IAMDI	FC	UMMARY		OTHER: D. Skoglie, K.Reynolds	
08:26: Wi	nd S @ 4 m	ature 64F,			MINIT L	LO	OMMAKI		R. Sharpe/S. Snook (Optr) K. Johnson (PIC)	
	c pressure 2					N	V/A			K. Hartilius (HPT)
•										K. Jones
TI	ME									
FROM	ТО				DESCR	IPTION	V O	F OPERATION	VS/REMARKS	3
07:00	08:30	The Work	Package is	not rel	eased to the	PIC. 0	CH	G is reviewing	the dome loa	ding information. Mr. Johnson
								Tank Farm w		
08:30			crew will tr ech (Richlan		t new hydra	ulic jac	k ba	ase-plate to wo	rk location.	The plate is ready for pick-up at
			_	_						
						_				
				+			_			
							-			
REPORT	BY: D.E. Ske	oglie	ESkog			RE	EVI	EWED BY: MO	G Gardner	

DRILL	ING AND	SAMPL	ING (PE	RCUS	SSION) D	AILY	W	ORK REC	CORD	Page 1 of 1
WELL I.D	: C3832		WELL NUM	BER:	N/A		REF	PORT NUMBE	R: 28	DATE: June 11, 2002 Tuesday
	T NUMBER:	20.50.00.00.00.00			RT CARD NO	: S00630 RIG MODE			RIG MODEL	/NO: SIMCO 5000 (Rig 106)
PURPOSE	: Daily Safety	y meeting. E	BSE provides	support	as required.		eren ev. 0	ENCE: DFSN	W-DOW-006,	LOCATION: TX Tank Farm, 20 West
REFEREN	CE MEASUR.	ING POINT:	Steel Plate				_		FOOTAGE: 0	
CONSTR	UCTION DE	SCRIPTIO	N: N/A					<i>BORING DE</i> START: 115		START TIME: 0700 END TIME: 1630
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE P		START DEPTH	END DEPT	, [END: 115.89 ft		CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	114.04 ft	114.04 ft	1			
DO	CUMENTEL	DOWNTI	ME		C		SUN	<i>MARY</i>		PERSONNEL:
								rt of shift) =	OPERATOR: KC Olson	
Do	me load issue	e – 9 hrs						d of shift) =	DL Curry/DE Morris	
		Casing (7 in OD) stick up (end of shift) = 0.9 ft.						WA LICENSE #: 1217		
WEATHE	R CONDITI		AMDI	E CII	MMARY		OTHER: D. Skoglie, K.Reynolds			
08:26: W	nd S @ 3 m	ature 68F,			AWITL	E 30.	MMAKI		R. Sharpe/S. Snook (Optr) K. Johnson (PIC)	
	c pressure 2					N	I/A			K. Johnson (PIC) K. Hartilius (HPT)
•										K. Jones
T	ME			1						
FROM	TO				DESCRI	IPTION	I OF	OPERATIO	VS/REMARKS	3
07:00	08:30	The Work	k Package is or was conta	not rel	eased to the	PIC. C	CHG TX	is reviewing Tank Farm w	the dome loa	ding information. Mr. Johnson
08:30		BSE drill		ansport						The plate is ready for pick-up at
	16:30	BSE crew	supports D	uratek/	CHG @ pip	eyard.				
				14.						
	BY: D.E. Ske	oglie	Telhog	0				WED BY: MO		DATE: 8-15-07

DRILL	ING AND	SAMPL	ING (PE	RCUS	SSION) D	AILY V	WORK REC	CORD	Page 1 of 2
WELL I.D.	: C3832		WELL NUM	BER:	N/A	R	EPORT NUMBE	R: 29	DATE: June 12, 2002 Wednesday
CONTRAC	T NUMBER:	8248-55		STAR	T CARD NO	: S00630		RIG MODEL	/NO: SIMCO 5000 (Rig 106)
PURPOSE Operations	: Daily and V	Veekly Safet	y meeting. D	ecomm	issioning	REFI Rev.	ERENCE: DFSN	W-DOW-006,	LOCATION: TX Tank Farm, 20 West
REFEREN	CE MEASUR	ING POINT:	Steel Plate				TOTAL SHIFT	FOOTAGE: 0	.0 ft.
CONSTR	UCTION DE	SCRIPTIO	N: N/A				BORING DEPTH: START: 115.89 ft END: 30.6 ft START TIME: 0700 END TIME: 1630 CONTRACTOR TIME: 9.5		
CASING SIZE	DEPTH	TYPE CASING	DRIVE PO	ION	START DEPTH	END DEPTH			CONTRACTOR TIME: 0.5
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	114.04 ft	29.89 ft			
DO	CUMENTED	DOWNTI	ME	T	C	ASING SU	UMMARY		PERSONNEL:
			6.00	Botto			start of shift) =	114.04 ft.	OPERATOR: KC Olson
	N/A			Botto	om of 7" OI	casing (end of shift) =	29.89 ft.	DL Curry/DE Morris
Casing (7 in OD)						stick up	(end of shift) =	2.1 ft.	WA LICENSE #: 1217
WEATHER CONDITIONS (373-2716)									OTHER: D. Skoglie, K Flower
0.52. W	nd NE @ 4	mmh tomm		-	S	AMPLE S	SUMMARY		R. Sharpe/S. Snook (Optr)
09:52: Wind NE @ 4 mph, temperature 76F, Barometric pressure 29.34, Humidity 40%.						N/A	· ·		K. Johnson (PIC) K. Hartilius (HPT)
	ME				DESCRI	PTION O	F OPERATIO	VS/REMARKS	
FROM	TO	(31105arra	FORWARES	71.50.50.70.00			/\
07:00	07:35				ed to the PIC				
07:35	07:54						pated daily acti s and Back Sai		mission bore-hole). Also, the
07:54	08:45						No equipment		
08:45	09:00						Casing @ ??? 2.2) = 111.6 ft		15.6 ft bgs (118.5 – [3.4 +1.2])
09:00	09:20	Pull and r crumbles 105.2 ft b	114.3 + 2.7	ng (#37 – (3.4) <500 psig + 2.1) = 111	jacking p .5 ft bgs.	ressure Casin Add 3 sks ben	g @ 104.84 ft tonite. Tag fil	bgs (110.34 – [3.4 + 2.1]). Ta 1 108 + 2.7 – (3.4 + 2.1) =
09:20	09:46	Pull and r 104.9 ft b	emove casir gs. Add ber	ng (#35 ntonite). Casing @ (2 sks) tag @	0 105.34 – 0 100.9 ft	(3.4 + 1.9) = 1 bgs $(106.2 - 6)$	100.04 ft bgs. 3.4 + 1.9).	Tag fill @ 110.2 – (3.4 + 1.9)
	10:08	Break		9			dr sa-		
09:46	10:21						bgs (100.34 – [] 101.0 - (3.4 -		Tag fill @ 106.3 – (3.4 + 2.07) 3 ft bgs.
		D. II 1					(3.4 + 1.6) = 95.8 (3.4 + 1.6) = 96		$\tilde{1}$ 11 @ 95.3 – (3.4 + 1.6) = 90.3
10:08	10:40		dd 2.5 sks be	momit					
10:08 10:21	10:40	ft bgs. Ac	emove casir	ıg # 30.	Casing @	90.34 – (3. 0.75 – (3.	3.4 + 1.7 = 85.6 4 - 1.7 = 85.6	24 ft bgs. Tag 5 ft bgs.	g fill $95.65 - (3.4 + 1.7) = 90.5$
09:46 10:08 10:21 10:40 REPORT	Professional State of	ft bgs. Ac Pull and r ft bgs. Ac	emove casir	ıg # 30.	Casing @	0.75 - (3.	3.4 + 1.7) = 85.6 4 - 1.7) = 85.6 (EWED BY: MC	5 ft bgs.	g fill 95.65 – (3.4 + 1.7) = 90.5

:	100								
DRILI	LING A	ND SA	MPLING (PERCUSSION)	DAILY WORK RECORD Page 2 of 2					
DATE:	June 12, 2	002	WELL NUMBER: C3832	CONTINUATION OF REPORT NUMBER: 29					
TIM	ΙE								
FROM	то		DESCRIPTION (OF OPERATIONS/REMARKS					
10:59	11:13	Pu 90	Il and remove casing #29 (jacking pr .6 - (3.4 + 1.6) = 85.6 ft bgs. Add 2	ressure 200 psig Casing @ $85.34 - (3.4 + 1.6) = 80.34$ ft bgs. 5 sks bentonite. Tag fill @ $85.55 - (3.4 + 1.6) = 80.25$ ft bgs.					
11:13	11:40	Pu		0.80.34 - (3.4 + 2.6) = 74.34 ft bgs. Tag fill $86.55 - (3.4 + 2.6)$					
11:40	12:20	Lu	nch	· ·					
12:20	12:47			Health physics has surveyed with no radiological contaminat					
Pull and remove casing #24. Casing @ $75.35 - (3.4 + 1.9) = 70.05$ ft bgs. Fill tag $81.15 - (3.4 + 1.9)$ ft bgs. Add 2.5 sks bentonite. Tag fill @ $75.65 - (3.4 + 1.9) = 70.35$ ft bgs.									
12:47	12:58	Pull and remove casing #23. Casing @ $70.36 - (3.4 + 2.1) = 64.86$ ft bgs. Fill tag $75.8 - (3.4 + 2.1)$ bgs. Add 2.5 sks bentonite. Tag fill @ $70.7 - (3.4 + 2.1) = 65.2$ ft bgs.							
12:58	13:12			acking pressure). Casing @ $65.36 - (3.4 + 2.05) = 59.91$ ft bg Add 2.5 sks bentonite. Tag fill @ $65.7 - (3.4 + 2.05) = 60.25$					
13:12	13:29	tag		acking pressure). Casing @ $60.37 - (3.4 + 2.15) = 54.82$ ft bg Add 2.5 sks bentonite. Tag fill @ $60.8 - (3.4 + 2.15) = 55.25$ box.					
13:29	13:42	Pu 55.	ll and remove casing #17. Casing @ .25 ft bgs. Add 2.5 sks bentonite. To	255.38 - (3.4 + 2.25) = 49.73 ft bgs. Fill tag $60.9 - (3.4 + 2.2)$ ag fill @ $56.1 - (3.4 + 2.25) = 50.45$ ft bgs.					
13:42	13:55	Pu bg:	ll and remove casing #15. Casing @ s. Add 2.5 sks bentonite. Tag fill @	50.39 - (3.4 + 2.0) = 44.99 ft bgs. Fill tag $55.5 - (3.4 + 2.0)50.65 - (3.4 + 2.0) = 45.25$ ft bgs.					
13:55	14:15	Br	eak WBGT reading form weather s	station 76 F.					
14:15	14:33	Pu bg:	ll and remove casing #14. Casing @ s. Add 2.5 sks bentonite. Tag fill @	45.39 - (3.4 + 1.8) = 40.19 ft bgs. Fill tag $50.6 - (3.4 + 1.8)45.7 - (3.4 + 1.8) = 40.5$ ft bgs.					
14:33	14:46	Pu ft b	ll and remove casing #12. Casing @ ogs. Add 2.5 sks bentonite. Tag fill	40.39 - (3.4 + 2.2) = 34.79 ft bgs. Fill tag $46.05 - (3.4 + 2.2)$ @ $40.9 - (3.4 + 2.2) = 35.3$ ft bgs.					
14:46	15:10		ll and remove casing #11. Casing @ s. Add 2.5 sks bentonite. Tag fill @	35.39 - (3.4 + 2.1) = 29.89 ft bgs. Fill tag $40.7 - (3.4 + 2.1)36.1 - (3.4 + 2.1) = 30.6$ ft bgs.					
15:10	15:30	Mo	ove pipe to pallet. Health physics surveyed from TX Tank Farm. Sacks w	rveyed with no radiological contamination noted. Bentonite savill be disposed of in garbadge.					
15:30	16:30		ea secured. Documentation complete						
REPORT	<i>BY</i> : D.E.	Skoglie		REVIEWED BY: MG Gardner					
TITLE: SIGNAT	Field Tear	m I Cad	in E. Shoglie	SIGNATURE: Melos DATE: 8-5-02					
			U						

DRILI	LING AND	SAMPL	ING (PE	RCUS	SSION) I	AILY	WORK REC	CORD	Page 1 of 1
WELL I.I	D.: C3832		WELL NUM	BER:	N/A		REPORT NUMBI	ER: 30	DATE: June 13, 2002 Thursday
CONTRA	CT NUMBER:	8248-55		STAR	RT CARD NO	: S00630		RIG MODEL	/NO: SIMCO 5000 (Rig 106)
PURPOS	E: Daily and S	Safety meetin	g. Decommis	ssioning	Operations.	REF Rev.	ERENCE: DFSN 0	W-DOW-006,	LOCATION: TX Tank Farm, 200 West
REFERE	NCE MEASUR	ING POINT	Steel Plate				TOTAL SHIFT	T FOOTAGE: 0	0.0 ft.
CONSTI	RUCTION DE	SCRIPTIO	N: N/A				BORING DE		START TIME: 0700
CASING	AI	TYPE CASING	DRIVE PO		START DEPTH	END DEPTH	START: 30.0 END: 0.0		END TIME: 1630 CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5
7.0 " OD	DEPTH NA	CS	Shoe, 7.5 "	OD	29.89 ft	0.0 ft	END: 0.0	It	
D	OCUMENTEL	DOWNTI	ME			CACINICS O	UMMARY		PERSONNEL
DC	COMENTEL	DOWNII	WE	Botto			(start of shift) =	= 20 80 ft	PERSONNEL: OPERATOR: KC Olson
	N/A						end of shift) =		DL Curry/DE Morris
							(end of shift) =		WA LICENSE #: 1217
WEATH	ER CONDITI	ONS (373-2	2716)						OTHER: D. Skoglie, K Flower
						SAMPLE	SUMMARY		R. Sharpe/S. Snook (Optr)
10:28: Wind N @ 6 mph, temperature 80F, Barometric pressure 29.31, Humidity 39%.						N/A			K. Johnson (PIC)
						19/2	1		K. Hartilius (HPT)
7	ГІМЕ				D.F.G.CR	IDTION	DE OBER IETO	NG (DEL CADA)	
FROM	TO				DESCR	IPTION (OF OPERATIO	NS/REMARKS)
07:00	07:42	Complete	equipment	inspect	ion, no defi	ciencies.	Health physics	has picked up	ssing anticipated activities. calibrated instruments.
07:42	08:31	Pull and r	emove casin	g (#10). Casing b	roke hard		.88 ft bgs (30	= 30.4 ft bgs. (08:17). 39 – [3.4 + 2.15]). Tag fill @ 25.95 ft bgs.
08:31	08:44	Pull and r	emove casin	g (#8).	Jacking pr	ressure @	250 psig. Casi	ing @ 19.79 ft	t bgs $(25.39 - [3.4 + 2.2])$. Tag .9 - (3.4 + 2.2) = 21.25 ft bgs.
08:44	09:01								ag fill @ $26.5 - (3.4 + 2.15) =$ 11 ft crumbles inside casing.
09:01	09:14	ft bgs. A	dd 2 sks ben	tonite.	Tag fill @	15.95 - (3.4 + 2.1) = 10.	45 ft bgs.	fill @ $18.5 - (3.4 + 2.1) = 13.0$
09:14	09:33	bgs. Add	2 sks benton	nite. T	ag fill @ 11	.6 - (3.4)	+ 2.0) = 6.2 ft t	ogs.	11 @ $15.8 - (3.4 + 2.0) = 10.4$ ft
09:33	09:47	bgs. Add	1.5 sks bent	onite.	Tag fill 6.5	- (3.4 -	1.85) = 1.25 ft t	ogs.	fill $9.7 - (3.4 + 1.85) = 4.45$ ft
09:47	10:10	Remove 2	ft section fi	om cas	sing string.	No radio	logical contami	nation noted o	on casing string.
10:10	10:25	Break							
10:25	11:30	Haul equi	pment to sta	ging ar	rea (support	equipme	nt) in preparatio	on of mobiliza	tion to the next bore hole.
11:30	12:05	Lunch							
12:05	16:30								e 7 inch casing pulling site. Complete documentation.
Alm/Adda									
REPORT	TBY: D.E. Ske Field Team I TURE:	oglie				KEV	IEWED BY: MO	3 Gardner	

CONTRACT NUMBER: \$248-55	DRILLI	NG AND	SAMPL	ING (PE	RCUS	SSION) D	AILY V	WORK REC	ORD	Page 1 of 1	
### CONTRACT NUMBER: 8248-55 ### START CARD NO: S00631 ### REFERENCE: DFSNW-DOW-006, Rev. 0 ### REFERENCE: Down DFSN DETER DETE	270525A4552095								ACT TO BE	DATE: June 14, 2002 Friday	
PURPOSE: Daily safety meeting. Waiting on Work Package approval. REFERENCE MEASURING POINT: Steel Plate CONSTRUCTION DESCRIPTION: N/A CASING SET TYPE DINVE POINT START END DEPTH CASING DIMENSION DEPTH DEPTH CASING DIMENSION DEPTH DEPTH DEPTH CASING DIMENSION DEPTH DEPTH DEPTH DEPTH DEPTH DEPTH DEPTH DEPTH CASING DIMENSION DEPTH DEP	CONTRACT	NUMBER:	8248-55		STAR	T CARD NO	: S00631		RIG MODEL		
CONSTRUCTION DESCRIPTION: N/A CASING SET AT TYPE DRIVE POINT DIMENSION DEPTH	PURPOSE:	Daily safety	meeting. V	Vaiting on Wo	ork Pack					LOCATION: TX Tank Farm, 2	
CASING SET- AT TYPE DRIVE POINT START END DIMENSION DEPTH DEPTH CASING DIMENSION DEPTH DEPTH DEPTH END: 0.0 ft END	REFERENC	E MEASUR.	ING POINT:	Steel Plate	- 11-11			TOTAL SHIFT	FOOTAGE: 0	.0 ft.	
CASING SIZE AT TYPE CASING DIMENSION DEPTH DEPTH DEPTH CASING DIMENSION DEPTH	CONSTRU	CTION DE	SCRIPTIO	N: N/A						START TIME: 0700	
TIME FROM TO Personnel on-site conduct discussion regarding TX Tank Farm operations. Mobilization to the next bor is pending Work Package release. The mast was lowered and inspected. The Hammer was Inspected. The casing and drill rod was covere drill unit/mast was inspected and maintenance performed. 15:30 BSE personnel will provide support for casing and 4.5 inch drill pipe cleaning/other work in the pipeyar Lunch 11:30 – 12:00 REPORT BY: D.E. Skoglie PERSONNEL: CASING SUMMARY PERSONNEL: OPERATOR: KC Olson DL CurryDE Morris WA LICENSE #: 1217 OTHER: S. Worley, K Flow R. Sharpe/S. Snook (Optr) K. Johnson (PIC) K. Hartilius (HPT) DESCRIPTION OF OPERATIONS/REMARKS DESCRIPTION OF OPERATIONS/REMARKS The mast was lowered and inspected. The Hammer was Inspected. The casing and drill rod was covere drill unit/mast was inspected and maintenance performed. 15:30 BSE personnel will provide support for casing and 4.5 inch drill pipe cleaning/other work in the pipeyar Lunch 11:30 – 12:00 REPORT BY: D.E. Skoglie REVIEWED BY: MG Gardner		AT		10.000000000000000000000000000000000000						CONTRACTOR TIME: 0.5	
Work package/dome – 9 hrs. Work package/dome – 9 hrs. Bottom of 7" OD casing (start of shift) = 0.0 ft. Bottom of 7" OD casing (end of shift) = 0.0 ft. Casing (7 in OD) stick up (end of shift) = 0.0 ft. SAMPLE SUMMARY N/A. N/A. DESCRIPTION OF OPERATIONS/REMARKS O7:00 Personnel on-site conduct discussion regarding TX Tank Farm operations. Mobilization to the next bor is pending Work Package release. The mast was lowered and inspected. The Hammer was Inspected. The casing and drill rod was covere drill unit/mast was inspected and maintenance performed. 15:30 BSE personnel will provide support for casing and 4.5 inch drill pipe cleaning/other work in the pipeyar Lunch 11:30 – 12:00 REPORT BY: D.E. Skoglie REVIEWED BY: MG Gardner	7.0 " OD		CS	Shoe, 7.5 "	OD	0.0 ft	0.0 ft		-		
Work package/dome – 9 hrs. Bottom of 7" OD casing (start of shift) = 0.0 ft. Bottom of 7" OD casing (end of shift) = 0.0 ft. Casing (7 in OD) stick up (end of shift) = 0.0 ft. SAMPLE SUMMARY N/A. N/A. DESCRIPTION OF OPERATIONS/REMARKS TO O7:00 Personnel on-site conduct discussion regarding TX Tank Farm operations. Mobilization to the next bor is pending Work Package release. The mast was lowered and inspected. The Hammer was Inspected. The casing and drill rod was covere drill unit/mast was inspected and maintenance performed. 15:30 BSE personnel will provide support for casing and 4.5 inch drill pipe cleaning/other work in the pipeyar Lunch 11:30 – 12:00 REPORT BY: D.E. Skoglie REVIEWED BY: MG Gardner	DOC	UMENTED	DOWNTI	ME	CASING SUMMARY					PERSONNEL:	
Work package/dome – 9 hrs. WEATHER CONDITIONS (373-2716) N/A. Bottom of 7" OD casing (end of shift) = 0.0 ft. Casing (7 in OD) stick up (end of shift) = 0.0 ft. SAMPLE SUMMARY N/A N/A DESCRIPTION OF OPERATIONS/REMARKS FROM TO Personnel on-site conduct discussion regarding TX Tank Farm operations. Mobilization to the next bor is pending Work Package release. The mast was lowered and inspected. The Hammer was Inspected. The casing and drill rod was covere drill unit/mast was inspected and maintenance performed. 15:30 BSE personnel will provide support for casing and 4.5 inch drill pipe cleaning/other work in the pipeyar Lunch 11:30 – 12:00 REPORT BY: D.E. Skoglie REVIEWED BY: MG Gardner					Botto	om of 7 " Ol					
WEATHER CONDITIONS (373-2716) N/A. SAMPLE SUMMARY R. Sharpe/S. Snook (Optr) K. Johnson (PIC) K. Hartilius (HPT) TIME FROM TO 07:00 Personnel on-site conduct discussion regarding TX Tank Farm operations. Mobilization to the next bor is pending Work Package release. The mast was lowered and inspected. The Hammer was Inspected. The casing and drill rod was covere drill unit/mast was inspected and maintenance performed. BSE personnel will provide support for casing and 4.5 inch drill pipe cleaning/other work in the pipeyar Lunch 11:30 – 12:00 REPORT BY: D.E. Skoglie REVIEWED BY: MG Gardner	Wor	k package/d	lome – 9 hr	s.	Botto	om of 7" OI	DL Curry/DE Morris				
N/A. SAMPLE SUMMARY R. Sharpe/S. Snook (Optr) K. Johnson (PIC) K. Hartilius (HPT)					Casir	ng (7 in OD) stick up	WA LICENSE #: 1217			
N/A. N/A N/A	WEATHER	CONDITI	ONS (373-2	2716)						OTHER: S. Worley, K Flower	
TIME DESCRIPTION OF OPERATIONS/REMARKS Personnel on-site conduct discussion regarding TX Tank Farm operations. Mobilization to the next bor is pending Work Package release. The mast was lowered and inspected. The Hammer was Inspected. The casing and drill rod was covere drill unit/mast was inspected and maintenance performed. BSE personnel will provide support for casing and 4.5 inch drill pipe cleaning/other work in the pipeyar Lunch 11:30 – 12:00 REPORT BY: D.E. Skoglie REVIEWED BY: MG Gardner		N/A					SAMPLE S	SUMMARY			
FROM TO Personnel on-site conduct discussion regarding TX Tank Farm operations. Mobilization to the next bor is pending Work Package release. The mast was lowered and inspected. The Hammer was Inspected. The casing and drill rod was covere drill unit/mast was inspected and maintenance performed. 15:30 BSE personnel will provide support for casing and 4.5 inch drill pipe cleaning/other work in the pipeyar Lunch 11:30 – 12:00 REPORT BY: D.E. Skoglie REVIEWED BY: MG Gardner		N/A.					N/A				
Personnel on-site conduct discussion regarding TX Tank Farm operations. Mobilization to the next bor is pending Work Package release. The mast was lowered and inspected. The Hammer was Inspected. The casing and drill rod was covere drill unit/mast was inspected and maintenance performed. BSE personnel will provide support for casing and 4.5 inch drill pipe cleaning/other work in the pipeyar Lunch 11:30 – 12:00 REPORT BY: D.E. Skoglie REVIEWED BY: MG Gardner	TIA	1E				DESCR	IDTION O	E ODER ATION	IS/DEMARKS		
is pending Work Package release. The mast was lowered and inspected. The Hammer was Inspected. The casing and drill rod was covere drill unit/mast was inspected and maintenance performed. BSE personnel will provide support for casing and 4.5 inch drill pipe cleaning/other work in the pipeyar Lunch 11:30 – 12:00 Lunch 11:30 – 12:00 REPORT BY: D.E. Skoglie REVIEWED BY: MG Gardner	FROM	TO									
drill unit/mast was inspected and maintenance performed. 15:30 BSE personnel will provide support for casing and 4.5 inch drill pipe cleaning/other work in the pipeyar Lunch 11:30 – 12:00 Lunch 11:30 – 12:00 REPORT BY: D.E. Skoglie REVIEWED BY: MG Gardner	07:00		Personnel is pending	on-site con Work Pack	kage release.						
15:30 BSE personnel will provide support for casing and 4.5 inch drill pipe cleaning/other work in the pipeyar Lunch 11:30 – 12:00 REPORT BY: D.E. Skoglie REVIEWED BY: MG Gardner			The mast	was lowered	spected and maintenance performed.						
Lunch 11:30 – 12:00 REPORT BY: D.E. Skoglie REVIEWED BY: MG Gardner		15:30									
REPORT BY: D.E. Skoglie REVIEWED BY: MG Gardner			7.10 65 3107					•		117	
327											
327											
92)				_							
525											
327							_				
525											
525								_			
525											
525										_	
TITLE: Field Team Lead Sho she Signature: TITLE: Project Manager DATE: 8-15-52 SIGNATURE: Melsan	REPORT B	Y: D.E. Sko	oglie		2000		REVI	EWED BY: MO	Gardner		

DRILL	ING AND	SAMPL	ING (PE	RCUS	SSION) D	AILY V	VORK REC	CORD	Page 1 of 1
WELL I.D.	.: C3831		WELL NUM	BER:	N/A	R	EPORT NUMBE	R: 32	DATE: June 17, 2002 Monday
CONTRAC	CT NUMBER:	8248-55		STAR	T CARD NO	9: S00631		RIG MODEL	NO: SIMCO 5000 (Rig 106)
	E: Daily safety Awaiting for			mobiliz	ration to next	REFE Rev.	CRENCE: DFSN	W-DOW-006,	LOCATION: TX Tank Farm, 20 West
REFEREN	ICE MEASUR	ING POINT:	Steel Plate				TOTAL SHIFT	FOOTAGE: 0.	0 ft.
CONSTR	UCTION DE	SCRIPTIO	N: N/A				BORING DE	PTH:	START TIME: 0700
CASING SIZE	DEPTH	TYPE CASING	DRIVE PO	SION DEPTH DEPTH		DEPTH	START: 0.0 ft END: 0.0 ft		END TIME: 1630 CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	0.0 ft	0.0 ft			
DO	CUMENTEL	DOWNTI	ME	CASING SUMMARY					PERSONNEL:
-				Botto	om of 7 " O	D casing (s	OPERATOR: N/A		
Wo	rk package -	9 hrs.			om of 7" OI		DL Curry (9)/DE Morris (11)		
				Casi	ng (7 in OD) stick up	(end of shift) =	0.0 ft.	WA LICENSE #: 1217
WEATHE	R CONDITI	ONS (373-2	2716)						OTHER: S. Worley, K Flower
	NT/A					SAMPLE S	UMMARY		R. Sharpe/S. Snook (Optr)
	N/A.					27/4			K. Johnson (PIC)
						N/A			K. Hartilius (HPT)
T	ME								
FROM	TO				DESCR.	IPTION O	F OPERATIO	VS/REMARKS	
07:00	10	Personnel	on-site con	duct di	scussion rec	parding T3	Tank Farm or	erations Mol	pilization to the next bore hole
			Work Pack			surding 12	r runk runn o _l	ciudons. 1910	sinzation to the next bore hole
		Slips pick	ed up by Mi	. Morr	is in Spokar	ne.			
	15:30	BSE perse	onnel worke	d on sl	ips and wre	nches. Pre	epared rig for n	nobilization to	next bore hole.
		Lunch 11	30 - 12:00						
						_			
REPORT	BY: D.E. Ske	oglie c				REVI	EWED BY: MO	G Gardner	
	BY: D.E. Ske	/	l €. Lho			H 1500/2019023	EWED BY: MO		DATE: 8-15-02

⊕ D	ırate	K	Dura	tek I	Federal	Ser	vi	ces, Inc.,	Northw	est Operations
DRILLI	NG AND	SAMPL	ING (PE	RCUS	SSION) D	AILY	Z V	ORK REC	CORD	Page 1 of 1
WELL I.D.:	C3831		WELL NUM	BER:	N/A		RE	EPORT NUMBE	R: 33	DATE: June 18, 2002 Tuesday
CONTRACT	NUMBER:	8248-55		STAR	T CARD NO	: S0063	1		RIG MODEL	/NO: SIMCO 5000 (Rig 106)
PURPOSE: bore hole. A			repare rig for ge approval.	mobiliz	ation to next		EFE ev. 0	RENCE: DFSN	W-DOW-006,	LOCATION: TX Tank Farm, 20 West
REFERENC	E MEASUR	ING POINT:	Steel Plate					TOTAL SHIFT	FOOTAGE: 0	.0 ft.
CONSTRU	CTION DE	SCRIPTIO	N: N/A					BORING DEPTH:		START TIME: 0700
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE PO			END DEPT		START: 0.0 ft END: 0.0 ft		END TIME: 1630 CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	0.0 ft	0.0 ft			-	
DOC	IMENTER	DOWNTI	MF	CASING SUMMARY						DEDCOMMET.
DOC	JHENIEL	DOWNIN	nL)	Bottom of 7 " OD casing (start of shift) = 0.0 ft.						PERSONNEL: OPERATOR: K. Olson
Worl	package -	9 hrs.		Bottom of 7" OD casing (start of shift) = 0.0 ft.						DL Curry (9)/DE Morris (11)
				Casing (7 in OD) stick up (end of shift) = 0.0 ft.						WA LICENSE #: 1217
WEATHER	CONDITI	ONS (373-2	2716)							OTHER: S. Worley, K Flower
	N/A.					SAMPL	ES	UMMARY		R. Sharpe/S. Snook (Optr)
	N/A.					N	I/A			K. Johnson (PIC) K. Hartilius (HPT)
TIM	TE .				D.EGGB	ID#IO				
FROM	TO				DESCR	IPTION	V OI	F OPERATION	VS/REMARKS	
07:00						garding	TX	Tank Farm or	perations. Mo	bilization to the next bore hole
-			y Work Pack				tha	hudeoulia ia ale	a a baalea ardia	nder was broke. A replacement
			dered or rep			loving	me	nydraune jack	s a brake cylin	ider was broke. A replacement
	16:30		onnel worke			ard.				
		Lunch 11:	30 – 12:00							
		_								
						~				
				_						
DEDORT	V. D.F. CI	alia.					77.77	CWCD DV 3.55	10.1	
<i>REPORT B</i> TITLE: Fie				1				EWED BY: MC		DATE:
SIGNATUI	1	David	E. Sho	flie		12.5		E: Project Mar ATURE:	11/1	DATE: 8-15-02
		161								

DDILLI	NC AND	CAMDI	INC (DE	DOI	CCION) D	A TT 37 1	WODE DEC	ODD	D 1 - C 1
		SAMPL	ING (PE	RCU	221ON) D	AILY	WORK REC	OKD	Page 1 of 1
WELL I.D.:	C3831		WELL NUM	BER:	N/A	R	EPORT NUMBE	R: 34	DATE: June 19, 2002 Wednesday
CONTRACT	T NUMBER:	8248-55		STAI	RT CARD NO	: S00631		RIG MODEL/	NO: SIMCO 5000 (Rig 106)
	Daily safety Awaiting for			mobilization to next REFERENCE: DFSNW-DOW-006, Rev. 0				W-DOW-006,	LOCATION: TX Tank Farm, 20 West
REFERENC	CE MEASUR	NG POINT:	Steel Plate				TOTAL SHIFT	FOOTAGE: 0.	0 ft.
CONSTRU	CTION DE	SCRIPTIO	V: N/A				BORING DE	PTH:	START TIME: 0700
CASING	SET-	TYPE	DRIVE PO	TIME	START	END	START: 0.0	ft	END TIME: 1630 CONTRACTOR TIME: 0.5
SIZE	AT DEPTH	CASING	DIMENS		DEPTH	DEPTH	END: 0.0 f	+	TOTAL TIME: 9.5
7.0 " OD	NA NA	CS	Shoe, 7.5 "	OD	0.0 ft	0.0 ft	END. 0.01		
DOC	CUMENTED	DOWNTH	/F	T		ASING S	UMMARY		PERGOVALET
DOC	OMENTED	DOWNIII	ME	Dott			start of shift) =	PERSONNEL: OPERATOR: K. Olson	
Wor	k Package -	9 hrs.			om of 7" OI		DL Curry (9)/DE Morris (11)		
	ar a moninge	7 11101			ng (7 in OD	WA LICENSE #: 1217			
WEATHER	R CONDITIO	ONS (373-2	716)		-6(OTHER: S. Worley, K Flower, K.			
		•			S	SAMPLE :	SUMMARY		Young
	N/A.								R. Sharpe/S. Snook (Optr)
						N/A			K. Johnson (PIC)
									J. (HPT)
TIN	МЕ				DESCRI	IDTION	OF OPERATION	IC/DEMARKS	
FROM	TO				- CRITICAL CARRANTAN				
07:00		Personnel is pending	on-site con Work Pack	duct di age re	scussion reg lease.	garding T	X Tank Farm op	erations. Mol	bilization to the next bore hole
		the sample	ers. The to	O-rir	sembled and ngs often we had moved a	re jamme	d between the v). The drive sl valls of the dri	noe cap was tight on most of we shoe and cap. On one
		100000	and the state of t		will initiate				
	16:30							BSE will nick	un and haul to the ninevard fo
		The new 4.5 inch subs and samplers arrived at Duratek's office. BSE w cleaning. BSE personnel worked in the Duratek's yard.							ap and had to the pipeyard to
	10 TO TOTO	cleaning.					***		
			30 - 12:00						
			30 – 12:00				-		
			30 – 12:00						
			30 – 12:00						
			30 – 12:00						
			30 – 12:00						
			30 – 12:00						
			30 – 12:00						
			30 – 12:00						
			30 – 12:00						
		Lunch 11:	30 – 12:00						
	BY: D.E. Sko	Lunch 11:				120,354,180,00	NEWED BY: MO		
		Lunch 11:	30 - 12:00	1 -		TITI	EWED BY: MO E: Project Man	nager	DATE: 8-15-02

DRILLI	NG AND	SAMPL	ING (PE	RCUS	SION) D	AILY V	WORK REC	CORD	Page 1 of 1		
WELL I.D.:	C3831		WELL NUM	BER: 1	N/A	R	EPORT NUMBE	R: 35	DATE: June 20, 2002 Thursday		
CONTRACT	NUMBER:	8248-55		STAR	T CARD NO	D: S00631		RIG MODEL	/NO: SIMCO 5000 (Rig 106)		
PURPOSE: bore hole. A	Daily safety waiting for	meeting. P Work Packa	repare rig for ge approval.	mobiliz	ation to next	REFI	ERENCE: DFSN 0	W-DOW-006,	LOCATION: TX Tank Farm, 20 West		
REFERENC	E MEASUR	ING POINT:	Steel Plate				TOTAL SHIFT	FOOTAGE:	0.0 ft.		
CONSTRU	CTION DE	SCRIPTIO	N: N/A			N2	BORING DE		START TIME: 0700 END TIME: 1630		
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE PO DIMENS	ION	START DEPTH	END DEPTH	START: 0.0 END: 0.01		CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5		
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	0.0 ft	0.0 ft					
DOC	UMENTEL	DOWNTI	ME		C	CASING S	UMMARY		PERSONNEL:		
1500000 TI	WELE - 1250	5500					start of shift) =		OPERATOR: K. Olson		
Worl	Package -	- 9 hrs.					end of shift) =		DL Curry/DE Morris WA LICENSE #: 1217		
WE ATUED	CONDITI	ONG (272 C	710	Casin	ig (7 in OD) stick up	(end of shift) =	0.0 ft.			
WEATHEK	CONDITI	ONS (373-2	(/16)			SAMPLE S	SUMMARY		OTHER: D. Skoglie R. Sharpe/S. Snook (Optr) K. Johnson (PIC)		
	N/A.					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	30,411,111				
						N/A	K. Hartilius (HPT)				
TIM	Œ				DESCR	IDTION	OF OPERATION	VC/DELLARY	g		
FROM	TO				DESCR	IPTION	OF OPERATION	VS/KEMAKK	S		
07:00		meeting v		e week	ly safety to				daily and Weekly Safety ation to the next bore hole is		
		(point-of-	contact). The	X perso	nnel are ex	empt fron	conducted today this drill.	y (~09:00 hrs). Mr. Johnson is the site POC		
			rams were								
	16:30		onnel worke	d in the	Duratek ya	ard.	*)				
		Lunch 11:	:30 – 12:00								
I			_								
					=======================================						
									3		

DRILLI	ING AND	SAMPL	ING (PE	RCUS	SSION) D	AILY	WORK REC	ORD	Page 1 of 1		
WELL I.D.:	C3831		WELL NUM	BER:	N/A		REPORT NUMBE	R: 36	DATE: June 24, 2002 Monday		
	T NUMBER:				T CARD NO		1	RIG MODEL/	NO: SIMCO 5000 (Rig 106)		
PURPOSE: bore hole.	Daily safety Awaiting for	meeting. P Work Packa	repare rig for ge approval.	mobiliz	zation to next		FERENCE: DFSN v. 0	W-DOW-006,	LOCATION: TX Tank Farm, 200 West		
REFEREN	CE MEASUR	NG POINT:	Steel Plate					FOOTAGE: 0			
CONSTRU	JCTION DE	SCRIPTIO	V: N/A				BORING DE		START TIME: 0700 END TIME: 1630		
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE PO DIMENS		START DEPTH	END DEPT			CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5		
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	0.0 ft	0.0 ft					
DOC	CUMENTEL	DOWNTI	ME		C	ASING	SUMMARY		PERSONNEL:		
				Botto	om of 7 " OI) casing	g (start of shift) =	0.0 ft.	OPERATOR: K. Olson		
Wor	rk Package -	9 hrs.					g (end of shift) =		DL Curry/DE Morris		
WE ATTE	n country	OVG (252 c	710	Casii	ng (7 in OD) stick ı	up (end of shift) =	0.0 ft.	WA LICENSE #: 1217		
WEATHE	R CONDITI	JNS (3/3-2	./16)		S	AMPL	E SUMMARY		OTHER: D. Skoglie S. Snook (Optr)		
	N/A.								K. Johnson (PIC)		
						N		K. Hartilius (HPT)			
TI	ME					_					
FROM	TO				DESCR	PTION	OF OPERATION	IS/REMARKS			
07:00	08:00	Personnel Anticipate	on-site coned activities	duct di were d	scussion reg iscussed. M	arding Iobiliza	TX Tank Farm op	erations. A dore hole is pen	aily Safety meeting was held. ding Work Package release.		
08:00		base was	lic fitting w compared to v base plate	verify	aced on the alignment	7 inch of the ja	casing puller. A nacks. The jacks w	neasurement o	f the plate and hydraulic jack in addition to the tabs welded		
	10:15	Bore hole be made d	(C3831) loo luring set-up	cation v	was walked drill and su	down a	nd leveled for the quipment.	plate and pipe	racks. Minor adjustments wil		
			11	d in the	Duratek va	ard					
	16:30	BSE perso	onnei worke	u iii uik	b Danatek Je	iiu.					
	16:30		30 – 12:00	d III tilk	Duraten y	iiu.					
	16:30			u iii uk	Duraten ye						
	16:30				- Summon y		77-32-1-1				
	16:30				- Duranen ye	iid.					
	16:30										
	16:30										
	16:30										
	16:30										
	16:30										

				200000000000000000000000000000000000000	A.C	1	_	ORK REC		Page 1 of 1	
WELL I.D.:	7(A4071,51)		WELL NUM	1			70.	PORT NUMBE	THE PERSON NAMED IN COLUMN TWO IS NOT	DATE: June 25, 2002 Monday	
	NUMBER:				CARD NO					NO: SIMCO 5000 (Rig 106)	
			repare rig for ge approval.	mobiliza	ition to next		ereri ev. 0	ENCE: DFSN	W-DOW-006,	West TX Tank Farm, 20	
REFERENC	E MEASUR	ING POINT:	Steel Plate				_		FOOTAGE: 0		
CONSTRU	CTION DE	SCRIPTIO	N: N/A				- 100	BORING DE START: 0.0		START TIME: 0700 END TIME: 1630	
CASING SIZE	SET- AT DEPTH	TYPE CASING	DRIVE PO		START DEPTH	END DEPT)	END: 0.0		CONTRACTOR TIME: 0.5 TOTAL TIME: 9.5	
7.0 " OD	NA	CS	Shoe, 7.5 "	OD	0.0 ft	0.0 ft					
DOC	UMENTED	DOWNTI	ME		C	ASING	SUN	IMARY		PERSONNEL:	
								rt of shift) =		OPERATOR: K. Olson	
Wor	k package –	9 hrs.						d of shift) =		DL Curry/DE Morris	
WE ATTE	COMPTE	ONG (272.5	716	Casin	g (7 m OD) stick i	up (er	nd of shift) =	0.0 ft.	WA LICENSE #: 1217	
VEATHER	CONDITI	ONS (3/3-2	2/16)			SAMPLI	F SII	MMARY		OTHER: D. Skoglie/K. Flower	
	N/A.			SAMPLE SUMMARY N/A						S. Snook (Optr) K. Johnson (PIC)	
									K. Hartilius (HPT)		
TIA	Œ										
FROM	TO				DESCR.	IPTION	OF	OPERATIO	VS/REMARKS		
07:00	08:30	Personnel	on-site con	duct dis	cussion res	garding	TXT	Tank Farm or	perations. A d	aily Safety meeting was held.	
		Anticipate	ed activities	were di	scussed. N	Iobiliza	ation	to the next be	ore hole is pen	ding Work Package release.	
08:30	11:30		ilic ram was facilitate o			sing jac	cks br	reak-out syste	em. The hydr	raulic jacks were rotated 180	
11:30	12:00	Lunch.									
12:00	16:30	BSE pers	onnel worke	d in the	Duratek y	ard. Fal	brica	te umbrella s	tands.		
				_							
							_				
								_	_		
						100					
	Y: D.E. Sko		Elles	1		0.55		WED BY: MO			
				,,		TIT	TIE.	Project Man		DATE: 8-15-02	

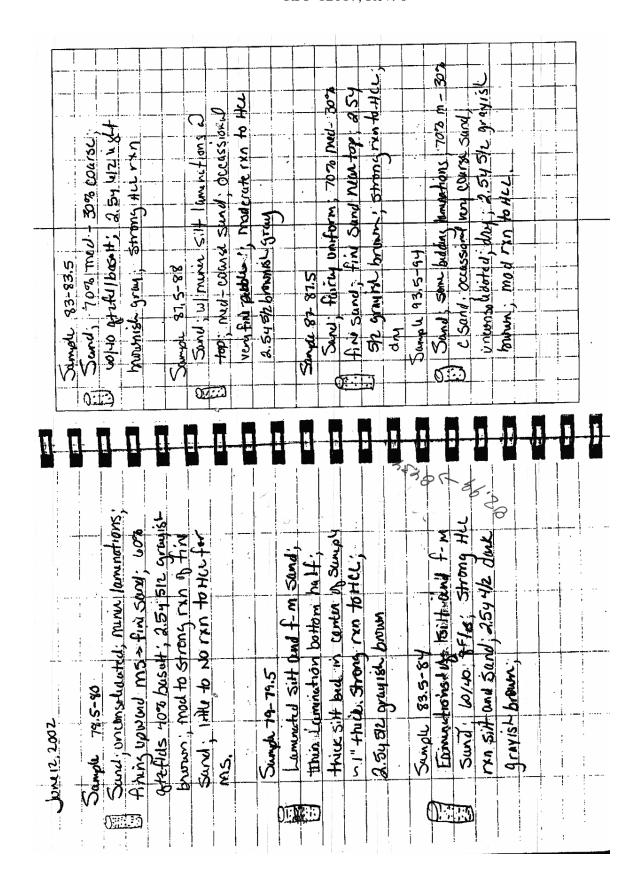
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APPENDIX B GEOLOGIC/SAMPLE LOGS

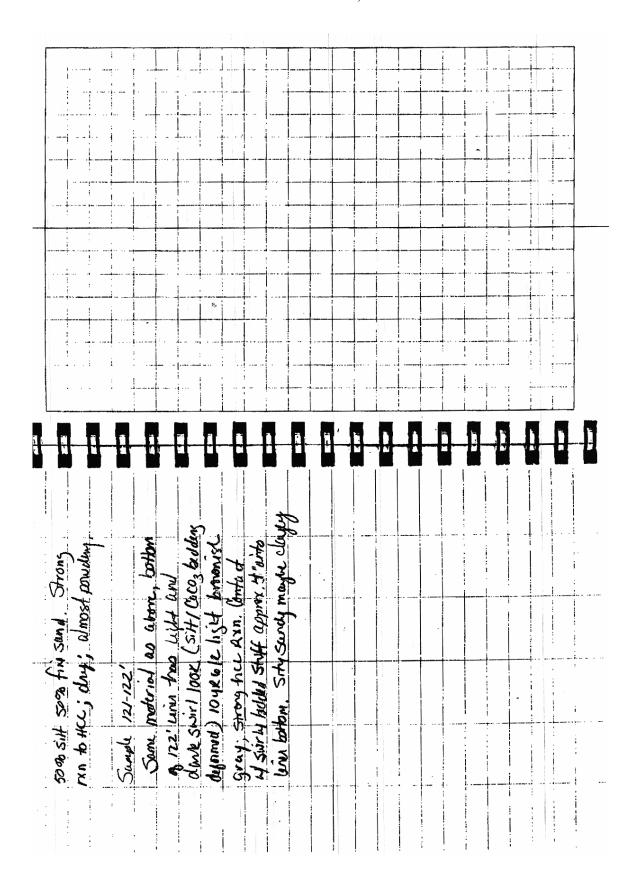
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	Obr			78/2	 	4		Sand matrix, way poorly sorted, slightly moist		(AL)	570 basel		YS: N	25	busht gran	0 1/			_
XIO4 /C3832-	Sorting	Moistur, roundines, bidging tentures,	3	St. Backfill material 2 54 4/2 dark gray	MCL U	Debugail and bounded to sate	C628	15 ST		wid materia,	16/1 7 7570		o Syden marich	Sand F-c chain	netil bes	> 752 bos.14	ļ		
Thomas Drilling - TX104 1C3832	of distribution ministrates, sorting,	Ded dains	Sandy depth 15.5-16" (6" Win	2544/2	brown, shaffy reaching to HCL	June !	3 4	Sare &		st Sunde appears to be putronied	described above, stuff matriell		-	Stan	/				
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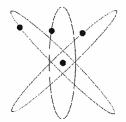


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APPENDIX C GEOPHYSICAL LOGS

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Pacific Northwest Geophysics

4200 West 19th Ave Kennewick, WA 99338 (509) 735-3963

"No Job Is Too Large or Too Small"

February 26, 2002

Mr. James Meisner Duratek Federal Services, Inc. 345 Hills Street Richland, WA 99352

Dear Mr. Meisner,

Re: SUBCONTRACT NO. A00536, Task Order 16

TX Tank Farm Moisture Review and Borehole Survey Data Processing

Enclosed are the deliverables for the Task Order 16 to subcontract A000536. The scope of the task involved analytical support for processing moisture survey results for 14 boreholes in the TX Tank Farm. The deliverables include for each borehole survey:

- MathCad calculation verification that documents: calibration date, calibration coefficients, borehole identification number, raw survey data, casing and density corrections (not applied), and computed moisture content. The program output (ASCII tabular file) included survey depth, computed moisture, raw moisture probe count rate, and count rate uncertainty (1 sigma, percent).
- Log survey header sheet that identifies: logging probe type, logging company, project name, borehole identification numbers, borehole information, logging information, and analysis information.
- Log survey results plot (one page with two tracks, 75 feet per track with 10 feet overlap).
- Log analysis and summary report sheet that identifies: logging probe type, logging company, project name, borehole identification number, environmental corrections, system performance verification, repeat interval, depth reference, and general notes.
- A copy of the borehole survey data sheet that records the field logging activities.
- Hard copy survey results and electronic copy (WinZip format) of: raw survey spectra files, analysis result files, log survey report files, and special request files (i.e. cross section plot of the survey results and tab delimited results files).
- Additional observations and research notes identified during the analysis are summarized as an attachment to this letter.

If you have any questions, or if I can be of further assistance, don't hesitate to call me at (509) 735-3963.

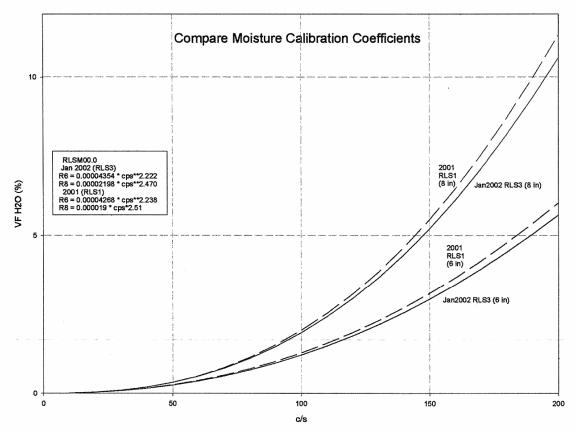
Sincerely,

Randall Price

Randell Price

TX Tank Farm Moisture Surveys Analysis Observations and notes

- No formation density correction was applied. The same density as the calibration models is assumed to represent environmental conditions in the boreholes.
- No casing thickness correction was applied. The same casing type and thickness as the calibration models (schedule-40) was associated with the borehole.
- Probe calibration (RLSM00.0) was 7% lower for Jan 29, 2002 calibration (RLS-3) when compared with previous probe calibration (2001) on RLS-1. The graph below compares the two sets of calibration coefficients. Similar changes in the calibration data have been observed on earlier occasions. Discussions among the other borehole geophysics experts and the project manager have concluded that the calibration and associated borehole survey results are valid and may reliably be used for geologic correlation and indication of relative moisture changes.



- The calibration model with the highest moisture content is 20 vf%. The expected maximum moisture content (personal communication with Russ Randall) for which the probe response is valid is between 35 and 50 %vf. [i.e. probe response trend will follow the calibration curve]. At moisture contents above 40 % [up to 100% water tank] the response is very steep and will not follow the power law function of the calibration curve.
- Four borehole surveys contain high neutron responses (greater than 20% apparent moisture content) 51-03-01, 51-03-11, 51-04-02, and 51-04-06. In each borehole the high moisture

- content occurred within 30 feet of ground surface, in either one extended zone approaching 20 feet thick or in two thinner zones.
- The historic tank farm neutron logs for these four holes (very high moisture content) were reviewed briefly. In three of the holes the historic neutron logs also had high neutron readings in the same general area. The historic neutron logs were gathered in 1990 and 1991 for three of these four boreholes. The fourth borehole (51-03-11) did not have a historic neutron log. Additionally, the zones with the highest neutron response do not contain high gamma contamination that may be contributing to the neutron response.
- Two of the boreholes (51-03-01 and 51-03-11) with high neutron moisture content also contain an unstable contamination zone (deeper in the borehole). Both unstable contamination zones show increasing activity from 1987 through the end of the historic surveillance logging data. A copy of the relevant pages from the TX Tank Farm Dry Well Analysis Report is included.
- A problem spectra file was identified during data processing of borehole 51-00-03. Spectra MB711603.chn at 149.5 ft (gross = 265 c/s with 15.46 sec LT) had very high count-rate. The spectrum shows a low energy anomaly (channel 37-68) that is not characteristic of probe response. Problem occurred only in one spectrum. If the anomalous channels are removed from tool response then count rate drops to 154 c/s (typical of adjacent zones; and was therefore substituted for processing moisture content. Several spectra files were examined from the surveys of all 14 boreholes. No other problem spectra files were identified.

Borehole 51-03-01

Contamination (Cs-137) from 0-4 feet is Tank Farm Activity. Contamination (Cs-137) from 4-14 feet is Stable. Contamination (Co-60) from 45-62 feet is Unstable Early. Contamination (Co-60) from 62-70 feet is Unstable.

Grade thickness product over 0 to 4 feet is erratic and indicative of tank farm activity.

Grade thickness product over 4 to 14 feet closely matches a Cs-137 (HPGe identified). Large statistical deviations confuse the possibility of a clear match. Thus the classification is stable, given the presence of the HPGe data.

Grade thickness product over 45 to 62 feet is increasing starting in 1977. From 1980 to 1983 the grade thickness product decreases faster than Co-60 decay (HPGe identified). The grade thickness product matches Co-60 decay from 1983 until 1994, thus the classification is unstable early. The HPGe logging data identified Eu-154 in this interval, but at levels too low to influence the match with the grade thickness product, and thus was not shown. (Not only is the intensity of Eu-154 nearly 1/5th the peak of Co-60, but the depth interval is much wider for the Co-60.) There is some indication of downward movement. At the start of the data in 1977, the depth profile is a single zone near 50 feet. With time this zone develops a lower zone that could be either a second front experiencing lateral influx or the 50-foot interval beginning a downward movement. Since the grade thickness product is calculated over the entire depth interval of possible downward movement, the large influx starting in 1977 is a lateral influx in addition to the downward movement.

Grade thickness product over 58 to 68 feet is increasing starting in 1980, until 1992. At no time is there a match with the Co-60 (HPGe identified) decay. Thus the classification is unstable, and the Co-60 decay curve is plotted for reference.

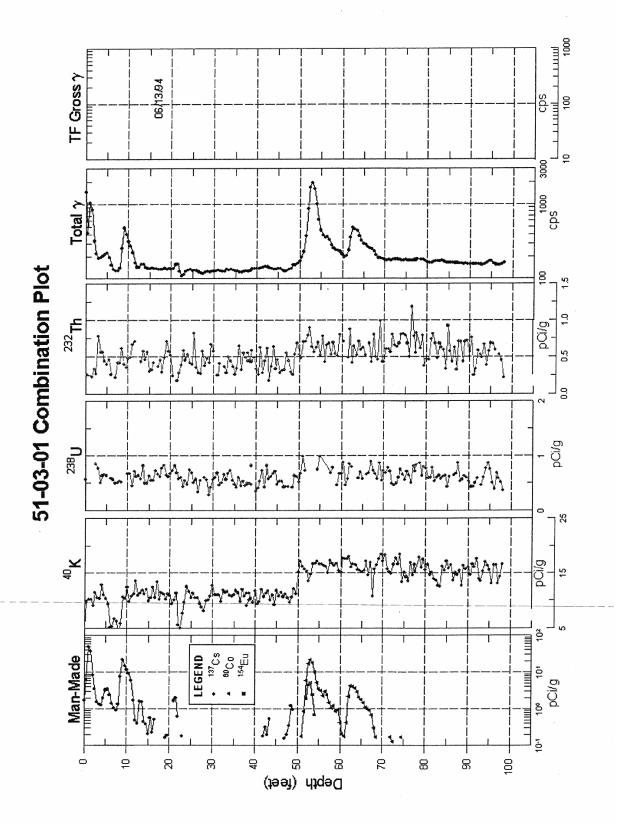
Gross Gamma Survey Information

	a survey removed
Probe Type Processed :	04: NaI
Other Probe Types:	03: Neutron
Survey Depth :	100 ft
First Survey Date :	7/1/1977
Last Survey Date :	6/13/1994
Number Surveys Processed :	458

Analysis Notes

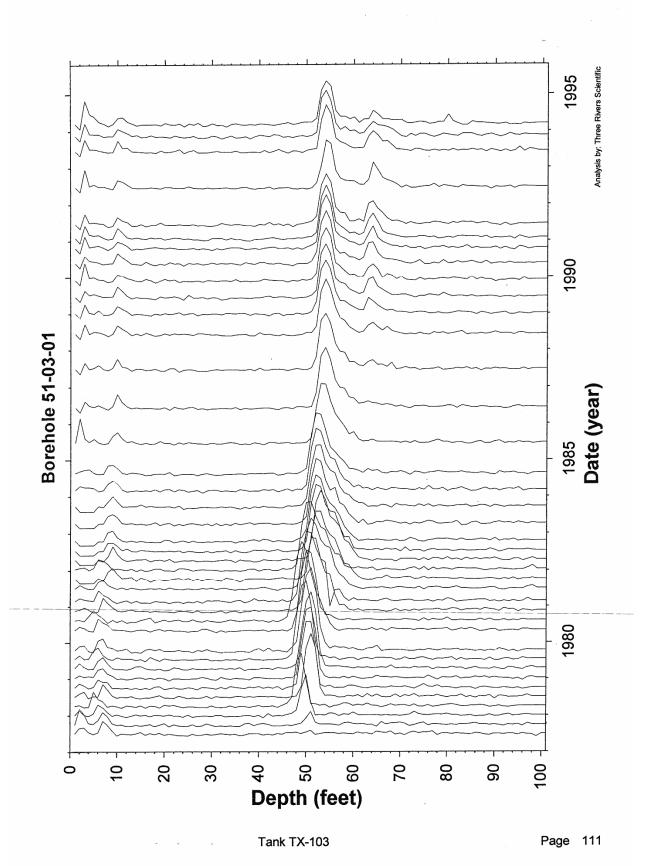
Method Used to Compute Background:	Threshold 0 <val<50< th=""></val<50<>
Depth(s) where Contamination Identified in	0-4 ft Tank Farm Activity
Gross Gamma Surveys :	4-14 ft Stable
	45-62 ft Unstable Early
	62-70 ft Unstable
Analyst Name :	R.R. Randall
Company Name :	Three Rivers Scientific

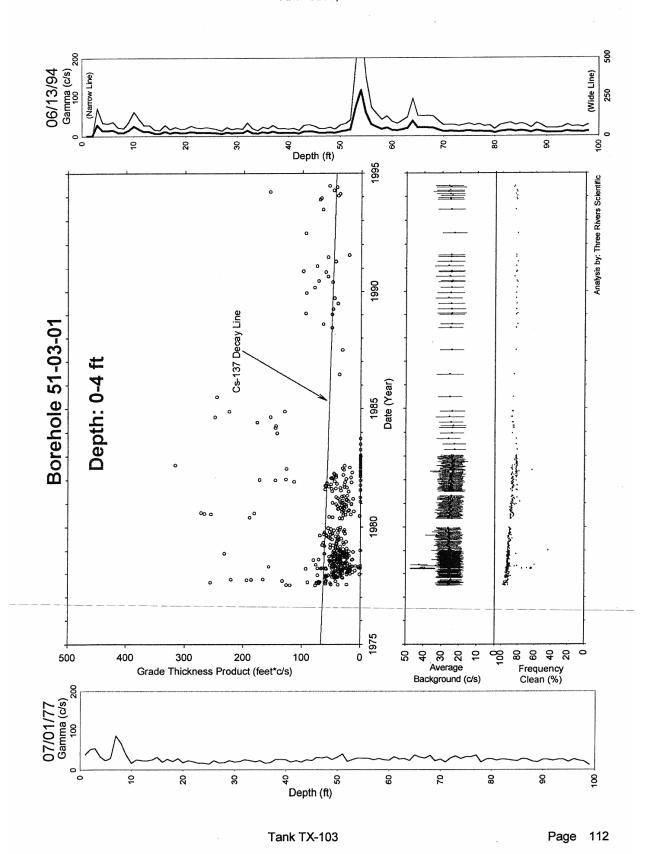
Tank TX-103



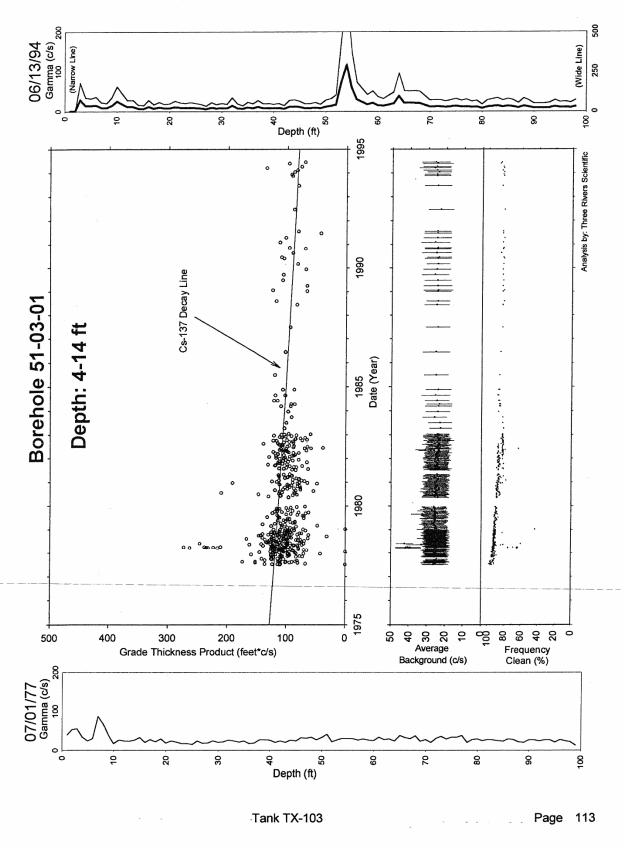
Tank TX-103

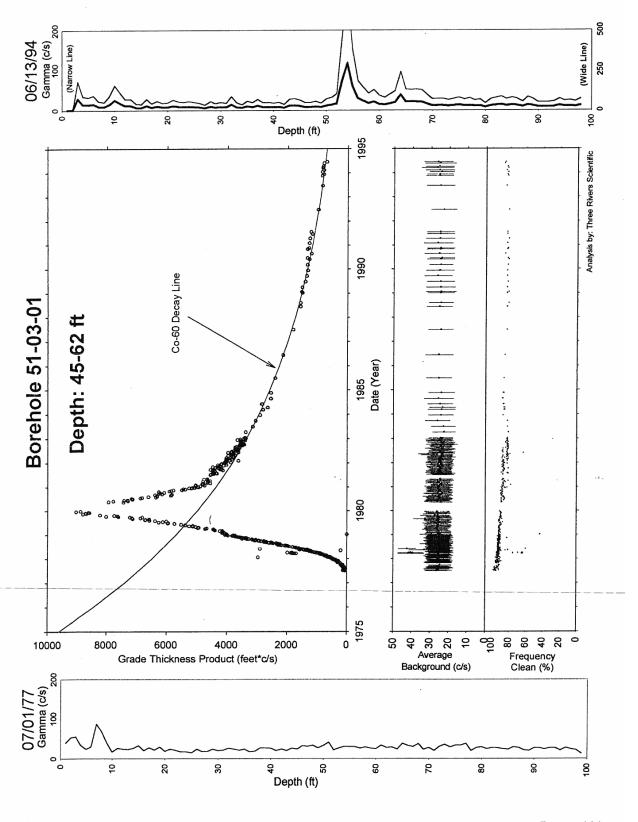
Page 110





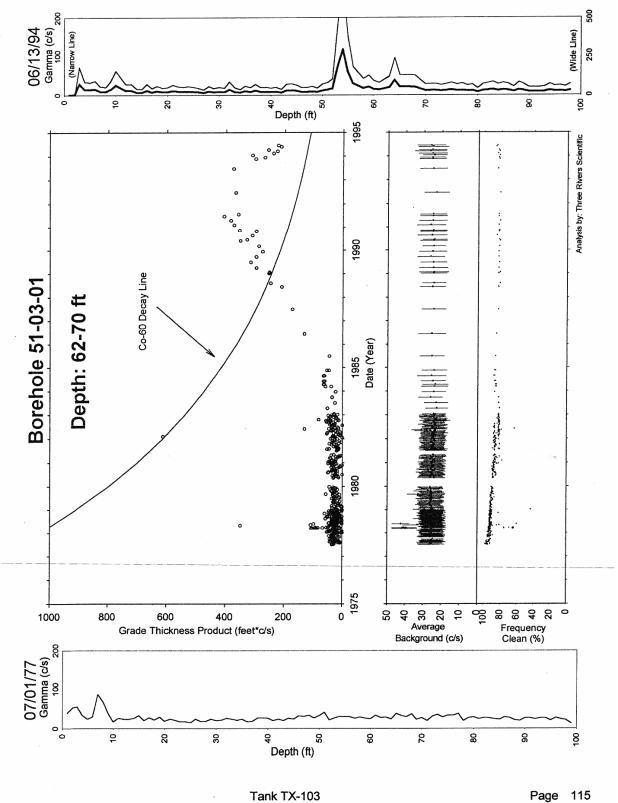
C-1.6





Tank TX-103

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Borehole 51-03-11

Contamination (Cs-137) from 45-72 feet is Unstable.

The stack plot shows a zone with only a somewhat broad peak from 45 to 58 feet in 1980, at the start of the historical data. A lower lobe centered near 61 feet begins to grow soon after 1980 and by mid 1986 is higher than the 50 foot peak. This 61 foot peak then diminishes and moves deeper. It is possible that the 50 foot zone is separate and stable, and the instability is from the deeper activity. Better depth resolution would be required to make a more definitive conclusion.

Grade thickness product over 45 to 72 feet increases starting in 1980. There is no time period for a match with an exponential decay. The grade thickness spans the entire depth for the history of these data, but the stack plots shows downward movement, thus the classification of unstable. The fact that the grade thickness product is not consistent with the calculated decay implies that the total downward movement is not conserved and the downward movement is accompanied with lateral influx.

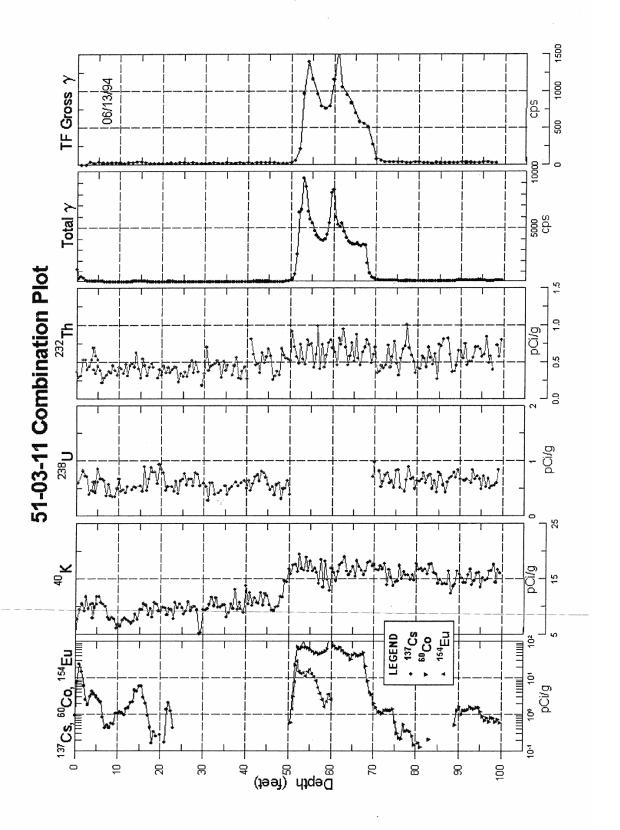
No HPGe data are available for this borehole.

Gross Gamma Survey Information

Probe Type Processed :	04: NaI
Other Probe Types:	03: Neutron
Survey Depth :	100 ft
First Survey Date :	5/7/1980
Last Survey Date :	6/28/1989
Number Surveys Processed :	166

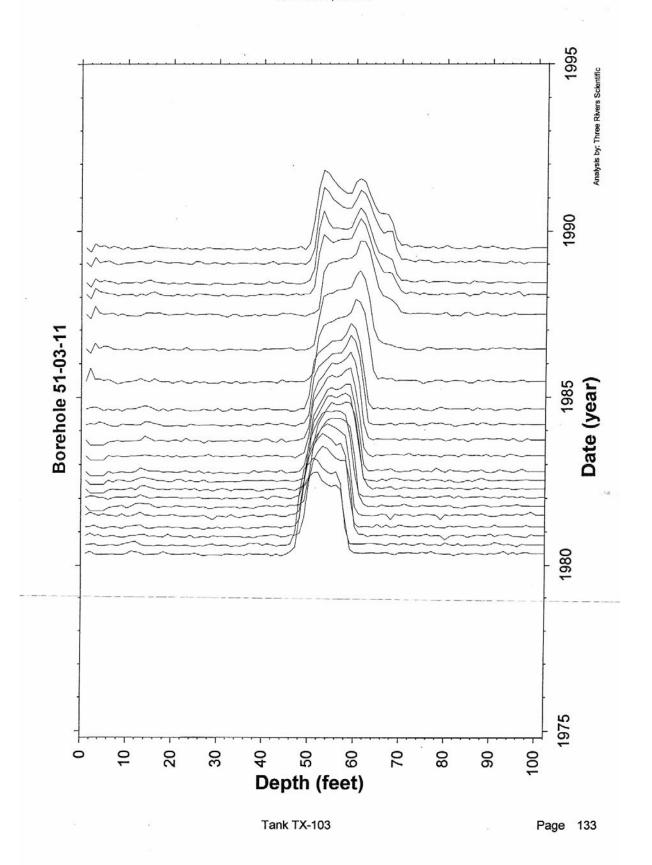
Analysis Notes

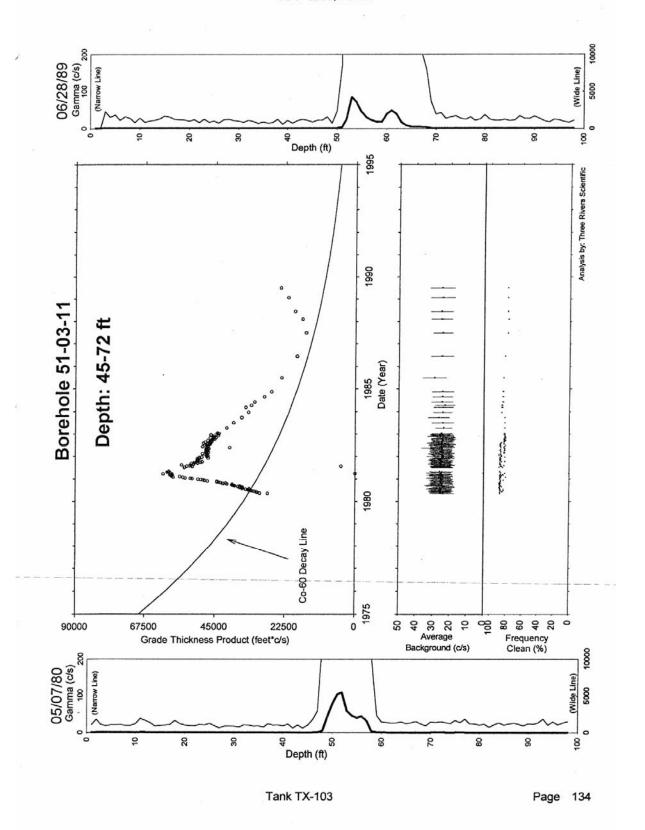
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	Method Used to Compute Background:	Threshold 0 <val<50< td=""></val<50<>
	Depth(s) where Contamination Identified in	45-72 ft Unstable
-	Gross Gamma Surveys:	
ı	Analyst Name :	R.R. Randall
	Company Name:	Three Rivers Scientific

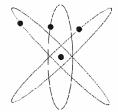


Tank TX-103

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Pacific Northwest Geophysics

4200 West 19th Ave Kennewick, WA 99338 (509) 735-3963

"No Job Is Too Large or Too Small"

March 5, 2002

Mr. Kent Reynolds Duratek Federal Services, Inc. 345 Hills Street Richland, WA 99352

Dear Mr. Reynolds,

Re: SUBCONTRACT NO. A00536, Task Order 16, Modification 1
TX Tank Farm Moisture Surveys with High Moisture Content

High moisture content was identified within the top 30 feet in four of the 14 dry-wells recently surveyed in the TX Tank Farm. The maximum computed moisture content in these four dry-wells approaches saturated conditions and may be of immediate concern unless the source of the high hydrogen (moisture) content can be reasonably identified.

Some of the proposed sources for the high moisture content include (1) a leaking water line(s) that run through the tank farm, or (2) grout injected when the larger diameter starter casing was removed.

Your request was to examine the logs with high moisture responses for the possibility that they are the result of cement (i.e. grout) injected between the 6-inch casing and formation when the larger starter casing (8-inch) was removed after drilling.

My conclusion is that the high moisture content recorded in the four dry-wells (51-03-01, 51-03-11, 51-04-02, and 51-04-06) is most likely the result of grout injected when the starter casing was removed. The results of the review are discussed in the attachment.

If you have any questions, or if I can be of further assistance, don't hesitate to call me at (509) 735-3963.

Sincerely, Randall Russ

Randall Price

March 5, 2002

TX Tank Farm Holes with High Moisture Content Review Notes

Background

The four tank farm dry-wells with high apparent moisture content (greater than 20%) are 51-03-01, 51-03-11, 51-04-02, and 51-04-06. In each borehole the high moisture content occurred within 30 feet of ground surface and was delineated in either one extended depth zone (approaching 20 feet thick) or in two thinner zones. The possibility was examined that these zones are the result of grout injected to fill the void space between the 6-inch casing and the formation wall when the 8-inch starter casing was removed.

Historic Tank Farm Neutron Logs

When the high moisture zones were identified, during processing of the moisture log data, the historic tank farm neutron logs for these four holes were briefly reviewed. The historic neutron logs (1991) also contained high neutron readings in the same general depth intervals, in the three dry-wells where the historic neutron logs are available. The historic neutron logs showed that the high moisture content was not a recent occurrence.

Moisture Probe Response in Calibration Model with Grout Jacket

The moisture gauge was characterized in the calibration models with a grout jacket constructed around a 4-inch casing and inserted into the large diameter (8-inch) models. The moisture probe count rate in the grout jacket was very high and had a lack of difference, indicating that the grout jacket dominates the instrument response. The table below shows the probe count rates and computed moisture content for the 6-inch calibration models and grout jacket. These data show that a grout annulus could product anomalous moisture content.

Radionuclide Logging System In Situ Vadose Zone Moisture Calibration WHC-SD-EN-TI-306 (May 1996) R. Randall, J. Meisner, R. Price Probe: RLSM1.1 Calibration Date: Aug. 1995 Calibration Coefficients (6-inch): V = 0.001597 * (cps)^2.013							
Calibration Model	RLSM1.1 (c/s)	Computed Moisture (%-vf)					
6" (5.0 %-vf)	54.2	4.94					
6" (11.7 %-vf)	84.9	12.2					
6" (29.8 %-vf)	106.8	19.4					
Grout Jacket (5 %-vf)	161.7	44.6					
Grout Jacket (20 %-vf)	163.0	45.3					

Drilling Records

A summary of the drilling activities important to geophysical logging (i.e. drilling and final casing information, including: number of strings, size, maximum depths, grout injection, and perforations) is available with the base line logging project using the high resolution germanium spectral gamma ray probe. The log survey information was examined for the 14 TX tank farm boreholes on which the moisture log was acquired. In only four boreholes the drilling record summary identified that grout was injected when the 8-inch starter casing was removed. The table below shows that the four boreholes

where starter casings were used, then removed, and grout was added to fill the voids are the save four boreholes that had high moisture content.

Hole ID	Drill Date	Starter Casing	Starter Casing Removed	Grout
51-03-01	Jun 1977	8-inch, 18-ft long	Yes	Yes, unknown amount
51-03-11	May 1977	8-inch (unknown length)	Yes	Yes, unknown amount
51-04-02	Apr 1976	8-inch, 20-ft long	Yes	Yes, 71 Gal.
51-04-06	Apr 1976	8-inch, 20-ft long	Yes	Yes, 160 Gal.

The volume of grout injected to fill the void space (between 6-inch casing and formation wall) after back-pulling the 8-inch starter casing was computed for comparison with the reported amounts.

- Void space is the volume difference between the 20-ft length of 8-inch casing minus the 6-inch inner casing
- Volume = (PI*(Radius square)*height)
- Volume 8-inch casing (20 ft long) = 6.98 cu-ft
- Volume 6-inch casing (20 ft long) = 3.93 cu-ft
- Void space (8 minus 6 inch volumes) = 3.05 cu-ft
- Void space (gallons) = 22.8 gal = 3.05 cu-ft * 7.481 gal/cu-ft

The volume of grout required to fill the void space left by the 8-inch starter casing (22.8 gal) is significantly less than the volume of grout reported (i.e. 71 and 160 gal). There is the possibility that some of the grout may have migrated through the high porosity unconsolidated sediments to depths below the starter casing depth, such as (23' in 51-03-01), (29' in 51-03-11), and (25' in 51-04-02).

Off-Normal Drilling Event

The drilling record summary for 51-04-06 had an off-normal occurrence: "The concrete tank footing was encountered at a depth of 47 ft. The drill string was withdrawn to a depth of 20 ft, and 10 ft of the 8-in starter casing was pulled back. The drill string was angled sufficiently to allow the bottom of the string to clear the footing. The interval between depth of 20 and 47 ft was re-drilled. This operation resulted in considerable reaming, spalling, and caving of the upper portion of the borehole; accordingly, a substantial thickness of grout may exist between the surface and depth of about 47 ft."

It is surprising that the moisture survey of 51-04-06 did not show any indications of grout (high moisture content) below the bottom of the 20-ft of starter casing.

Non-Related Finding

While reviewing the drilling record summary another inconsistency was identified. Borehole 51-00-07 was reportedly completed on March 7, 1949 in a dual casing configuration with 12-inch casing to 50 ft and 10-inch casing to 150 ft. There is no record of 8-inch casing that is present in this borehole. The HPGe survey processed the data based on a single 8-inch casing and demonstrated by the lack of change in natural radionuclide activity that a second casing is not present in the borehole. The conclusion is that the drilling records are describing a borehole different than 51-00-07.

Conclusion

Based on the review, documented above, there is no reason to reject the present assertion that the high moisture readings are the result of grout. The high moisture content recorded in the four dry-wells (51-03-01, 51-03-11, 51-04-02, and 51-04-06) is most likely the result of grout injected when the starter casing was removed.

Borehole Survey Log Header

Duratek Federal Services, Inc.

Project:

241-TX-104 Drilling

Borehole: C3832

Log Types:

HPGe Spectral-Gamma & Neutron-Moisture

Borehole Information

Well ID	C3832	Water Depth	None	ft	Total Depth _	115 ft
Elevation Reference	ce	Elevation	n/a	ft	MAD 25-	
Depth Reference	Ground Level	Casing Stickup	4.23	_ft		
Casing Diameter	5.87in I.D.	Depth Interval	0 to 112	2.5ft	Thickness	0.59 in
Casing Diameter	in I.D.	Depth Interval		ft	Thickness	in

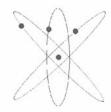
Logging Information

Log Type	Neutron-Moisture Gauge		HPGe Spectral-Gamma	
Logging Unit	RLS-1		RLS-1	
Logging Engineer	J. Meisner		J. Meisner / S.	Kos
Instrument ID	RLSM00.0		RLSG07000S	01.0
Instrument Calibration Date	Jan. 29, 2002		Oct. 29, 2001	
Survey Date	Jun. 4, 2002		Jun. 6, 2002	
Depth Interval / Prefix	0 to 80 ft	MC01	0 to 27.5 ft	A728
	76 to 115 ft	MC02	25 to 97.5 ft	A729
	100 to 114 ft	Repeat	94 to 115 ft	A730
			75 to 86 ft	Repeat

Analysis Information

Company	Pacific Northwest Geophysics	
Analyst	Randall Price	
Date	June 13, 2002	

Notes: The repeatability (precision) of the Moisture and Gamma surveys is good. U-238 was detected from 104 to 108 feet at concentrations near the gamma survey minimum detection levels (10 pCi/g). Co-60 was detected from 76 feet to the maximum survey depth of 115 feet; maximum concentration is 1.2 pCi/g at 79.5 feet. Moisture for 7.0-inch O.D. borehole was computed using the 6.56-inch O.D. calibration model coefficients.



Pacific Northwest Geophysics

4200 West 19th Ave Kennewick, WA 99338 (509) 735-3963

"No Job Is Too Large or Too Small"

June 14, 2002

Mr. Kent Reynolds Duratek Federal Services, Inc. 345 Hills Street Richland, WA 99352

Dear Mr. Reynolds,

Re: SUBCONTRACT NO. A00536, Task Order 18 TX-104 Tank Farm Borehole (C3832) Survey Data Processing

Enclosed are the deliverables for the Task Order 18 to subcontract A000536. The deliverables are HPGe spectral gamma and Neutron Moisture survey results for C3832-TX-104 and include:

- Moisture calculation from MathCad.
 - MathCad results identify: borehole ID, calibration date, coefficients, and casing correction. No density correction was applied.
 - Casing correction factor (multiplier) is 1.339.
 - o Calibrations coefficients are %vf=0.00004354CR^{2.222} (6-inch calibration model)
 - MathCad output file "Moist.dat" is ASCII. Tabular columns are: depth, moisture, raw count rate, and count rate uncertainty (1 sigma, percent).
- Radionuclide concentration from LgCalc.
 - All gamma photo peaks above MDL were identified to assure all radionuclides are included in the analysis results. Photo peak uncertainties less than 30% are above MDL levels. Radionuclide identification phase is in sub-directories "-RadID".
 - o Casing correction information is shown on the Borehole Survey Log Header.
 - Calibration coefficients are: ε(E)=1/(11.19E^{0.1068}) as per ref. RLSG07000S01.0 calib. date Oct. 29, 2001; report date Jun. 3, 2002)
 - o Minimum Detection Levels are listed in the Log Analysis Summary Report.
- Final survey results in Microsoft Word ".doc" format. The results file contains:
 - Borehole Survey Log Header (Moisture & Gamma surveys merged as one form)
 - Log survey results plot. One page containing both Moisture and Gamma results.
 - Log Analysis Summary Report (Moisture & Gamma merged)

Thank You.

Randall Price

Randell Pur

Log Analysis Summary Report

Duratek Federal Services, Inc.

Project: 241-TX-104 Drilling Well ID: C3832 Log Type: Neutron-Moisture & HPGe Spectral Gamma Log Dates: June 4-6, 2002

General Notes:

The moisture survey shows that the formation moisture content gradually increases from about 5 vf% (volume fraction percent) to near 15 vf% and that several thin zones of higher moisture content are present through out the hole. The large increase in moisture content from 43 to 45 feet is interpreted as moisture accumulation above the compacted zone at the base of the tank excavation. The change in measurement geometry at the surface (0 ft) dominates the detector response and the low apparent moisture content may not be correct. The moisture survey is appropriate for identifying changes in the relative moisture content.

The gross gamma increase in the zone from 76 to 86 feet is from Co-60. The increase from 100 to 110 feet is due to increase concentrations of the natural radionuclides (uranium and thorium) and the two detected manmade radionuclides (U-238 and Co-60). The increase in detector responses (especially Total Gamma) at the survey bottom (114 feet) is the result of the detector entering the open hole below the drilling casing.

Environmental Corrections: The casing thickness correction (as shown on the Borehole Survey Log Header) was applied to the detector responses before computing the apparent moisture content and radionuclide concentration. No formation density correction was applied since it is assumed to be similar to calibration model densities (approx. 1.76 g/cc). No casing correction was applied to the Total Gamma due to Compton down-scatter interference.

Depth Reference: Zero depth of log survey is at ground level.

System Performance Verification: The gamma survey pre- and post-log verification was performed using "Coleman #1" mantles. The maximum FWHM (full width at half maximum) for the 583 keV gamma ray photo peak (²³²Th) was 2.1 keV. The maximum acceptable FWHM resolution is 3.1 keV for probe RLSG07000S01.0.

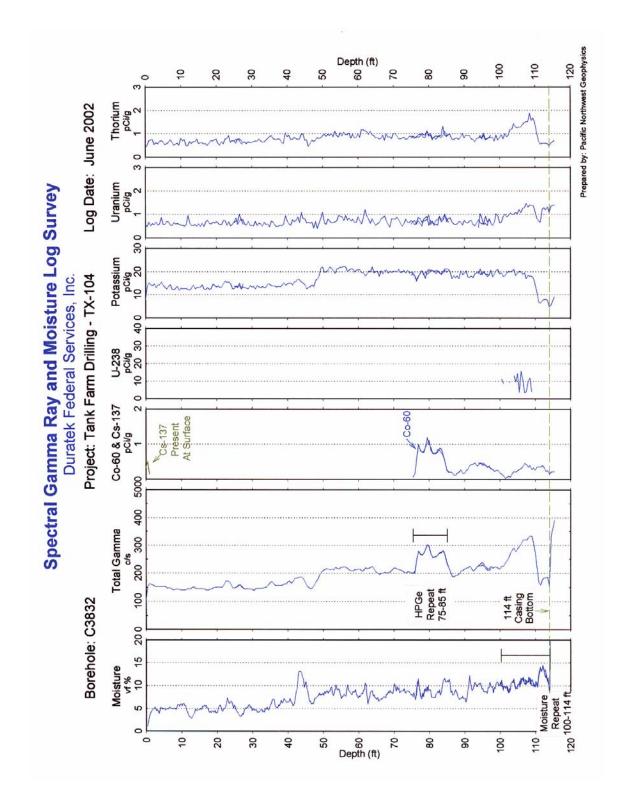
The moisture survey pre- and post-log verification measurements (695 and 696 c/s respectively) were within the range of previous system performance checks.

Repeat Interval: The repeat intervals have excellent agreement with the main log. (Moisture repeat is 100-114 ft.) (Gamma repeat is 75-85 ft.)

Radionuclides:

- Cs-137 is present at the surface (0 to 1 feet) at a concentration less than 1 pCi/g.
- Co-60 was detected from 75 feet to the maximum survey depth (115 feet). The maximum concentration is 1.2 pCi/g at 79.5 feet.
- U-238 was detected from the 1001 keV gamma peak at concentrations near MDL from 100 to 109 feet.
 The presence of U-235 (186 keV gamma peak) could not be identified through the thick drilling casing.

	Co-60	U-238	Cs-137
max. Concentration	1.2 pCi/g @ 79.5 ft	15 pCi/g @ 106 ft	0.5 pCi/g @ 0.5 ft
max. Depth at MDL	> 115 ft	109 ft	1 ft
MDL	0.1 pCi/g	10 pCi/g	0.1 pCi/g



nl := last(d) i := 0.. nl Hole ID: C3832 TX-104

Page - 1

Moisture Calculation (Casing Corrected & NO Density Correction)

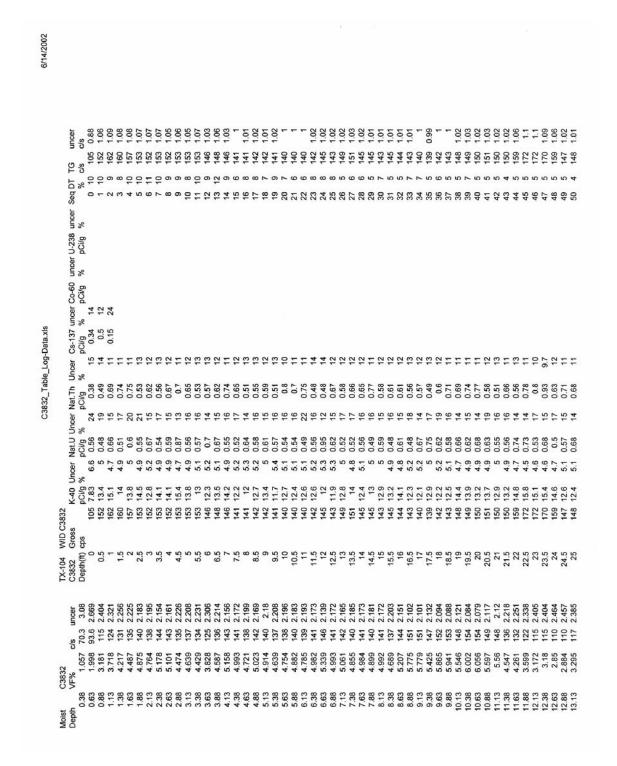
 $d := A^{<0>}$ $cr := A^{<1>}$

A := READPRN("Ogross2.dat")

Calc_Moist_MCad7.mcd

800 600 400 200 $t := .590 + \frac{0}{2}$ Thickness (inches) t = 0.59 Casing Attenuation (beyond calibration model): attn := 1.311 - .9560 ·t f = 1.339 Casing Correction Factor a6 := .00004354 $\alpha6 := 2.222$ Calibration Coefficients: RLSM00.0 Jan 29, 2002 a8:=.00002198 $\alpha 8 := 2.470$ ax coefficients hole size = 13.375" ax := .00001038 $\alpha x := 2.762$ crcor, := cr. f **Casing Correction** moist := $a6 \cdot (crcor_i)^{\alpha 6}$ Compute moisture Hole Size: 6.56 in (OD) 30 100 110 120 time := 15 Count times secs. Uncertainty (%, 1 sigma) out^{<3>} := σ Moisture (% volume fraction) WRITEPRN("moist.dat") := out Depth correction may be applied.

6/14/2002



51-00-03 (299-W15-67) TX Tank Farm, Moisture: MB71

Neutron-Neutron Moisture Borehole Survey

Duratek Federal Services, Inc.

Log Header

Project:

TX Tank Farm

Borehole: 51-00-03

Log Type:

Moisture Gauge

Hanford ID: 299-W15-67

Borehole Information

Well ID	A7368	Water Depth None f	t Total Depth 150 ft
Elevation Referen	ce Top Casing	Elevation 207.782 M	М
Depth Reference	Top Casing	Casing Stickup 0.0 f	t
Casing Diameter	8 in I.D.	Depth Interval 0 to 150 f	Thickness 0.313 in
Casing Diameter	in I.D.	Depth Interval	t Thickness in

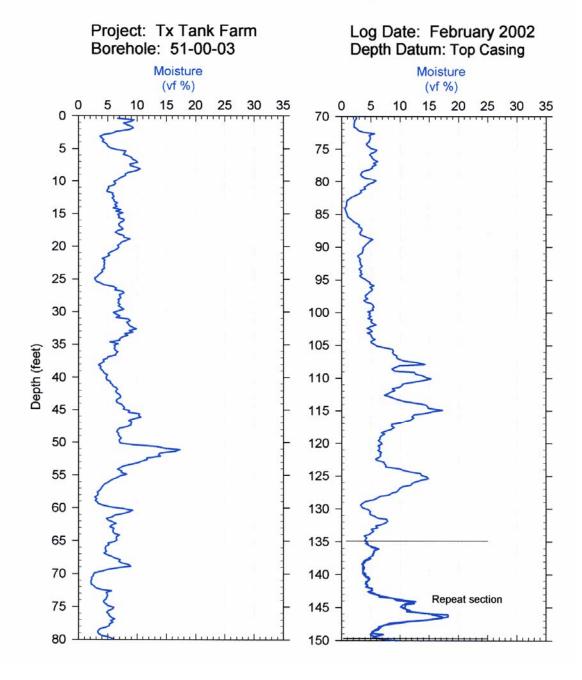
Logging Information

Log Type	Moisture Gauge	
Company	Duratek Federal Se	ervices
Date/Archive File Name	Feb 14, 2002	MB71Raw
Logging Engineers	J. E. Meisner	
Instrument Series	RLSM00.0	
Logging Unit	RLS3	
Depth Interval	0 to 150 ft	Prefix MB71
So the set of the set	150 to 135 ft	Repeat
Instrument Calibration Date	January 29, 2002	1900 A 1900 A
Calibration Report	WHC-SD-EN-TI-3	06, Rev. 0

Analysis Information

Company	Pacific Northwest Geophysics
Analyst	Randall Price
Date	February 25, 2002

Notes: The repeatability (precision) of the moisture gauge measurement is good and identifies relative changes in moisture content. Spectra MB711603 (149.5 ft) of repeat survey had possible tool noise present in the spectra and was remove for processing. The main survey spectra did not contain the noise.



Moisture Log Analysis & Summary

Duratek Federal Services, Inc.

Project: TX Tank Farm Well ID: 51-00-03 Log Type: Moisture Gauge Log Dates: February 14, 2002

General Notes:

The precision (repeatability) of the moisture gauge survey is appropriate for identifying relative changes in moisture content. Spectra MB711603 (149.5 ft) of repeat survey had possible tool noise present in the low energy portion of the spectra. The main survey spectra did not contain the noise. The excess counts were removed from this individual spectrum for moisture content computation.

Environmental Corrections: The drilling method and insufficient stick-up above the cement collar compromised attempts to measure casing thickness during logging operation. As an alternative, the thickness for schedule-40 8-inch casing (0.313 inch) was used. Since the thickness for the borehole casing is the same as the moisture calibration models, no casing thickness correction was required.

Density of the formation is assumed to be similar to the density of the moisture calibration models (1.70 to 1.76 g/cc). No formation density correction has been applied to the raw survey data.

Depth Reference: Zero depth reference of log survey is at top of casing.

System Performance Verification: The pre- and post-log verification measurements were 734 and 733 c/s respectively. The system verification check measurements are consistent with previous system performance checks and within the normal observed range of 710 to 760 c/s.

Repeat Interval: The repeat interval, 150 to 135 feet, shows good agreement. The logging system performed according to specifications.

51-00-06 (299-W15-69) TX Tank Farm, Moisture: MB74

Neutron-Neutron Moisture Borehole Survey

Duratek Federal Services, Inc.

Log Header

Project: TX Tank Farm Borehole: 51-00-06

Log Type: Moisture Gauge Hanford ID: 299-W15-69

Borehole Information

Well ID	A7370	Water Depth None ft	Total Depth 150 ft
Elevation Reference	ce Top Casing	Elevation 205.719 M	
Depth Reference	Top Casing	Casing Stickup 0.0 ft	
Casing Diameter	8 in I.D.	Depth Interval 0 to 150 ft	Thickness 0.313 in
Casing Diameter	in I.D.	Depth Interval ft	Thickness in

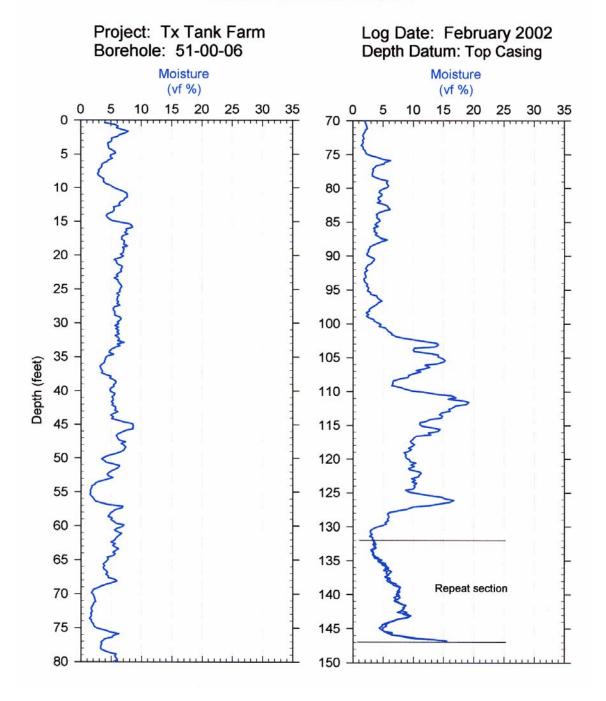
Logging Information

Log Type	Moisture Gauge	
Company	Duratek Federal Ser	vices
Date/Archive File Name	Feb 19, 2002	MB74Raw
Logging Engineers	R. Z. Steffler	
Instrument Series	RLSM00.0	
Logging Unit	RLS3	
Depth Interval	0 to 146.7 ft	Prefix MB74
	146.7 to 131.7 ft	Repeat
Instrument Calibration Date	January 29, 2002	
Calibration Report	WHC-SD-EN-TI-30	6, Rev. 0

Analysis Information

Company	Pacific Northwest Geophysics
Analyst	Randall Price
Date	February 25, 2002
Notes The managed bility (maniping) of the	e moisture gauge measurement is good and identifies relative

The repeatability (precision) of the moisture gauge measurement changes in moisture content.



Moisture Log Analysis & Summary

Duratek Federal Services, Inc.

Project:

TX Tank Farm

Well ID:

51-00-06

Log Type:

Moisture Gauge

Log Dates: February 19, 2002

General Notes:

The precision (repeatability) of the moisture gauge survey is appropriate for identifying relative changes in moisture content.

Environmental Corrections: The drilling method and insufficient stick-up above the cement collar compromised attempts to measure casing thickness during logging operation. As an alternative, the thickness for schedule-40 8inch casing (0.313 inch) was used. Since the thickness for the borehole casing is the same as the moisture calibration models, no casing thickness correction was required.

Density of the formation is assumed to be similar to the density of the moisture calibration models (1.70 to 1.76 g/cc). No formation density correction has been applied to the raw survey data.

Depth Reference: Zero depth reference of log survey is at top of casing.

System Performance Verification: The pre- and post-log verification measurements were 728 and 730 c/s respectively. The system verification check measurements are consistent with previous system performance checks and within the normal observed range of 710 to 760 c/s.

Repeat Interval: The repeat interval, 146.7 to 131.7 feet, shows good agreement. The logging system performed according to specifications.

51-00-07 (299-W15-73) TX Tank Farm, Moisture: MB58

Neutron-Neutron Moisture Borehole Survey

Duratek Federal Services, Inc.

Log Header

Project: TX Tank Farm Borehole: 51-00-07

Log Type: Moisture Gauge Hanford ID: 299-W15-73

Borehole Information

Well ID	A7374	Water Depth None ft	Total Depth 150 ft
Elevation Reference	ce Top Casing	Elevation 205.078 M	
Depth Reference	Top Casing	Casing Stickup 0.0 ft	
Casing Diameter	8in I.D.	Depth Interval 0 to 150 ft	Thickness 0.313 in
Casing Diameter	in I.D.	Depth Intervalft	Thickness in

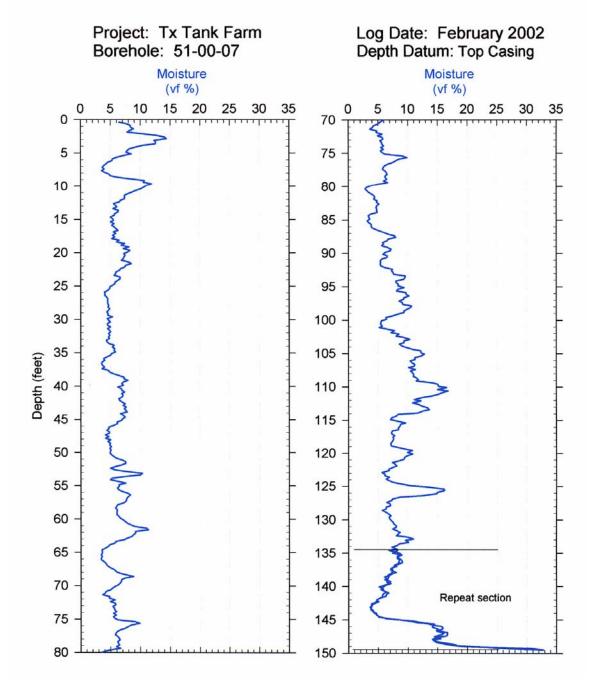
Logging Information

Log Type	Moisture Gauge	
Company	Duratek Federal Ser	vices
Date/Archive File Name	Feb 7, 2002	MB58Raw
Logging Engineers	R. Z. Steffler	
Instrument Series	RLSM00.0	
Logging Unit	RLS3	
Depth Interval	0 to 149.4 ft	Prefix MB58
•	149.4 to 134.5 ft	Repeat
Instrument Calibration Date	January 29, 2002	-09-2200 4 (120-820)
Calibration Report	WHC-SD-EN-TI-30	6, Rev. 0

Analysis Information

Company	Pacific Northwest Geophysics
Analyst	Randall Price
Date	February 25, 2002

Notes: The repeatability (precision) of the moisture gauge measurement is good and identifies relative changes in moisture content. Moisture increase at bottom of borehole is typical of water (moisture) in the bottom of the borehole, even though no free-water was measured with the e-tape.



Moisture Log Analysis & Summary

Duratek Federal Services, Inc.

Project: TX Tank Farm Well ID: 51-00-07 Log Type: Moisture Gauge Log Dates: February 7, 2002

General Notes:

The precision (repeatability) of the moisture gauge survey is appropriate for identifying relative changes in moisture content. Moisture log has an increase at bottom of borehole, which is typical of water in the bottom of the borehole. However, since no free-water was measured with the e-tape, the moisture detected by the probe must not include free-water inside the borehole.

Environmental Corrections: The drilling method and insufficient stick-up above the cement collar compromised attempts to measure casing thickness during logging operation. As an alternative, the thickness for schedule-40 8-inch casing (0.313 inch) was used. Since the thickness for the borehole casing is the same as the moisture calibration models, no casing thickness correction was required.

Density of the formation is assumed to be similar to the density of the moisture calibration models (1.70 to 1.76 g/cc). No formation density correction has been applied to the raw survey data.

Depth Reference: Zero depth reference of log survey is at top of casing.

System Performance Verification: The pre- and post-log verification measurements were 718 and 717 c/s respectively. The system verification check measurements are consistent with previous system performance checks and within the normal observed range of 710 to 760 c/s.

Repeat Interval: The repeat interval, 149.4 to 134.5 feet, shows good agreement. The logging system performed according to specifications.

51-02-02 (299-W15-170) TX Tank Farm, Moisture: MB68

Neutron-Neutron Moisture Borehole Survey

Duratek Federal Services, Inc.

Log Header

Project: TX Tank Farm Borehole: 51-02-02

Log Type: Moisture Gauge Hanford ID: 299-W15-170

Borehole Information

Well ID	A7468	Water Depth None ft	Total Depth 100 ft
Elevation Reference	ce Top Casing	Elevation 206.050 M	
Depth Reference	Top Casing	Casing Stickup 0.0 ft	
Casing Diameter	6 in I.D.	Depth Interval 0 to 100 ft	Thickness 0.28 in
Casing Diameter	in I.D.	Depth Interval ft	Thickness in

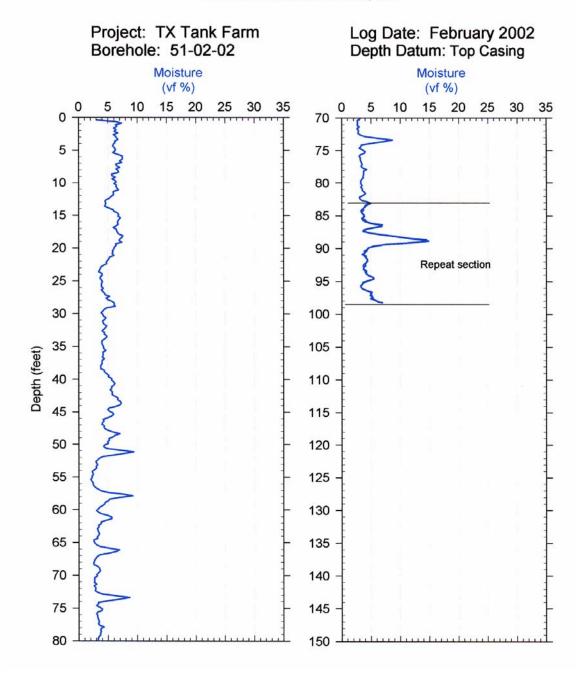
Logging Information

Log Type	Moisture Gauge	
Company	Duratek Federal Se	ervices
Date/Archive File Name	Feb 12, 2002	MB68Raw
Logging Engineers	R. Z. Steffler	
Instrument Series	RLSM00.0	
Logging Unit	RLS3	
Depth Interval	0 to 98.3 ft	Prefix MB68
•	98.3 to 83 ft	Repeat
Instrument Calibration Date	January 29, 2002	*
Calibration Report	WHC-SD-EN-TI-3	06, Rev. 0

Analysis Information

Company	Pacific Northwest Geophysics
Analyst	Randall Price
Date	February 25, 2002

Notes: The repeatability (precision) of the moisture gauge measurement is excellent and identifies relative changes in moisture content.



Moisture Log Analysis & Summary

Duratek Federal Services, Inc.

Project:

TX Tank Farm

Well ID:

51-02-02

Log Type: Moisture Gauge

Log Dates: February 12, 2002

General Notes:

The precision (repeatability) of the moisture gauge survey is appropriate for identifying relative changes in moisture content.

Environmental Corrections: The drilling method and insufficient stick-up above the cement collar compromised attempts to measure casing thickness during logging operation. As an alternative, the thickness for schedule-40 6-inch casing (0.280 inch) was used. Since the thickness for the borehole casing is the same as the moisture calibration models, no casing thickness correction was required.

Density of the formation is assumed to be similar to the density of the moisture calibration models (1.70 to 1.76 g/cc). No formation density correction has been applied to the raw survey data.

Depth Reference: Zero depth reference of log survey is at top of casing.

System Performance Verification: The pre- and post-log verification measurements were 756 and 715 c/s, respectively. The system verification check measurements are consistent with previous system performance checks and within the normal observed range of 710 to 760 c/s.

Repeat Interval: The repeat interval, 94 to 83 feet, shows excellent agreement. The logging system performed according to specifications.

51-03-01 (299-W15-192) TX Tank Farm, Moisture: MB65

Neutron-Neutron Moisture Borehole Survey

Duratek Federal Services, Inc.

Log Header

Project:

TX Tank Farm

Borehole: 51-03-01

Log Type:

Moisture Gauge

Hanford ID: 299-W15-192

Borehole Information

Well ID	A7490	Water Depth None	ft	Total Depth	_100 ft
Elevation Reference	ce Top Casing	Elevation 205.84	12_M	I SOME STATE OF STATE	
Depth Reference	Top Casing	Casing Stickup 0.0	ft		
Casing Diameter	6in I.D.	Depth Interval 0 to 10	00_ft	Thickness	0.28 in
Casing Diameter	in I.D.	Depth Interval	ft	Thickness	in

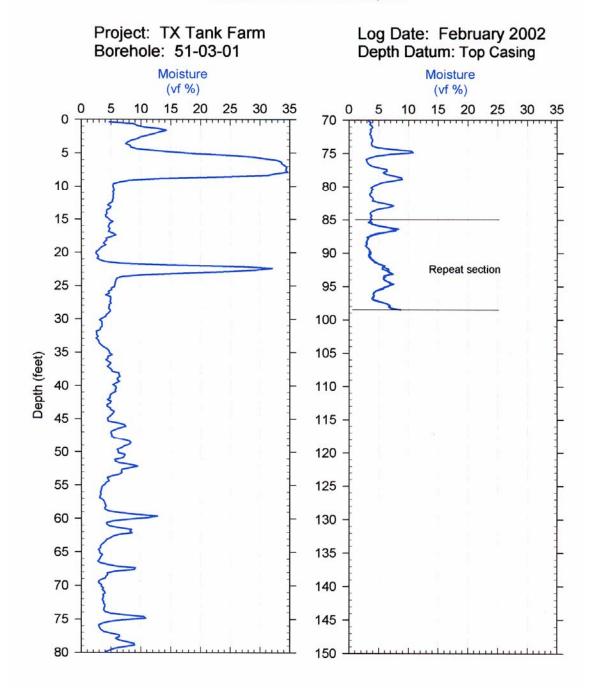
Logging Information

Log Type	Moisture Gauge	
Company	Duratek Federal Ser	vices
Date/Archive File Name	Feb 11, 2002	MB65Raw
Logging Engineers	J. E. Meisner	
Instrument Series	RLSM00.0	
Logging Unit	RLS3	
Depth Interval	0 to 98.5 ft	Prefix MB65
the first of the second that the set of the second the	98.5 to 85 ft	Repeat
Instrument Calibration Date	January 29, 2002	50.50C*0000000
Calibration Report	WHC-SD-EN-TI-30	6, Rev. 0

Analysis Information

Company	Pacific Northwest Geophysics
Analyst	Randall Price
Date	February 25, 2002

Notes: The repeatability (precision) of the moisture gauge measurement is excellent and identifies relative changes in moisture content. Very high apparent moisture encountered in two zones above 25 feet.



Moisture Log Analysis & Summary

Duratek Federal Services, Inc.

Project:

TX Tank Farm

Well ID:

51-03-01

Log Type:

Moisture Gauge

Log Dates: February 11, 2002

General Notes:

The precision (repeatability) of the moisture gauge survey is appropriate for identifying relative changes in moisture content. Very high apparent moisture encountered in two zone above 25 feet. Other boreholes in the area also had high moisture (51-03-11, 51-04-02, and 51-04-06)

Environmental Corrections: The drilling method and insufficient stick-up above the cement collar compromised attempts to measure casing thickness during logging operation. As an alternative, the thickness for schedule-40 6inch casing (0.280 inch) was used. Since the thickness for the borehole casing is the same as the moisture calibration models, no casing thickness correction was required.

Density of the formation is assumed to be similar to the density of the moisture calibration models (1.70 to 1.76 g/cc). No formation density correction has been applied to the raw survey data.

Depth Reference: Zero depth reference of log survey is at top of casing.

System Performance Verification: The pre- and post-log verification measurements were 735 and 720 c/s, respectively. The system verification check measurements are consistent with previous system performance checks and within the normal observed range of 710 to 760 c/s.

Repeat Interval: The repeat interval, 98 to 85 feet, shows excellent agreement. The logging system performed according to specifications.

51-03-02 (299-W15-71) TX Tank Farm, Moisture: MB66, MB67

Neutron-Neutron Moisture Borehole Survey

Duratek Federal Services, Inc.

Log Header

Project:

TX Tank Farm

Borehole: 51-03-02

Log Type:

Moisture Gauge

Hanford ID: 299-W15-71

Borehole Information

Well ID	A7372	Water Depth	None	_ft	Total Depth	150	ft
Elevation Reference	ce Top Casing	Elevation	205.888	_M			
Depth Reference	Top Casing	Casing Stickup	0.0	_ft			
Casing Diameter	8 in I.D.	Depth Interval	0 to 150	_ft	Thickness	0.313	_in
Casing Diameter	in I.D.	Depth Interval		_ft	Thickness		_in

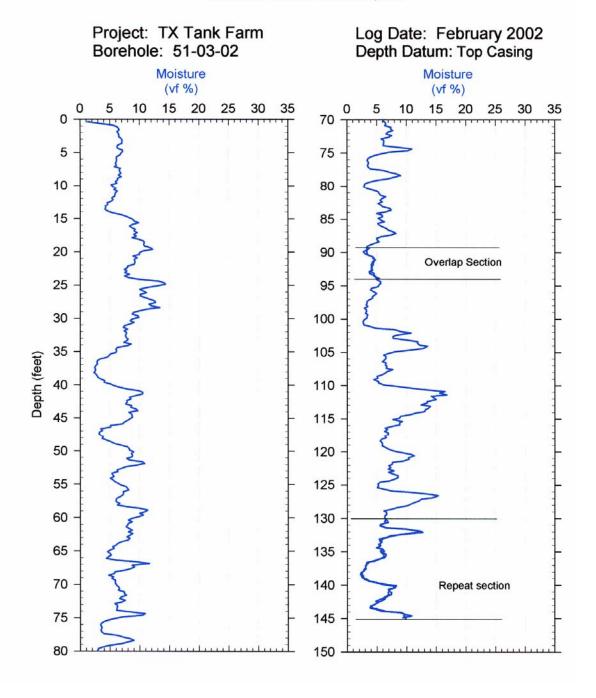
Logging Information

Log Type	Moisture Gauge	
Company	Duratek Federal Ser	vices
Date/Archive File Name	Feb 11-12, 2002	MB66Raw, MB67Raw
Logging Engineers	J. E. Meisner	
Instrument Series	RLSM00.0	
Logging Unit	RLS3	
Depth Interval	0 to 94 ft	Prefix MB66
•	89 to 145 ft	Prefix MB67
	145 to 133 ft	Repeat
Instrument Calibration Date	January 29, 2002	
Calibration Report	WHC-SD-EN-TI-30	6, Rev. 0

Analysis Information

Company	Pacific Northwest Geophysics	
Analyst	Randall Price	
Date	February 25, 2002	

Notes: The repeatability (precision) of the moisture gauge measurement is good and identifies relative changes in moisture content.



Moisture Log Analysis & Summary

Duratek Federal Services, Inc.

Project:

TX Tank Farm

Well ID:

51-03-02

Log Type:

Moisture Gauge

Log Dates:

Feb. 11-12, 2002

General Notes:

The precision (repeatability) of the moisture gauge survey is appropriate for identifying relative changes in moisture content.

Environmental Corrections: The drilling method and insufficient stick-up above the cement collar compromised attempts to measure casing thickness during logging operation. As an alternative, the thickness for schedule-40 8-inch casing (0.313 inch) was used. Since the thickness for the borehole casing is the same as the moisture calibration models, no casing thickness correction was required.

Density of the formation is assumed to be similar to the density of the moisture calibration models (1.70 to 1.76 g/cc). No formation density correction has been applied to the raw survey data.

Depth Reference: Zero depth reference of log survey is at top of casing.

System Performance Verification: The pre- and post-log verification measurements were (735, 720 c/s on 2/11/2002) and (756, 730 c/s on 2/12/2002). The system verification check measurements are consistent with previous system performance checks and within the normal observed range of 710 to 760 c/s.

Repeat Interval: The repeat interval, 145 to 130 feet, shows excellent agreement. The logging system performed according to specifications.

51-03-09 (299-W15-128) TX Tank Farm, Moisture: MB72, MB73

Neutron-Neutron Moisture Borehole Survey

Duratek Federal Services, Inc.

Log Header

Project:

TX Tank Farm

Borehole: 51-03-09

Log Type:

Moisture Gauge

Hanford ID: 299-W15-128

Borehole Information

Well ID	A7427	Water Depth None ft	Total Depth 100 ft
Elevation Reference	ce Top Casing	Elevation 205.744 M	
Depth Reference	Top Casing	Casing Stickup 0.0 ft	
Casing Diameter	6in I.D.	Depth Interval 0 to 100 ft	Thickness 0.28 in
Casing Diameter	in I.D.	Depth Interval ft	Thickness in

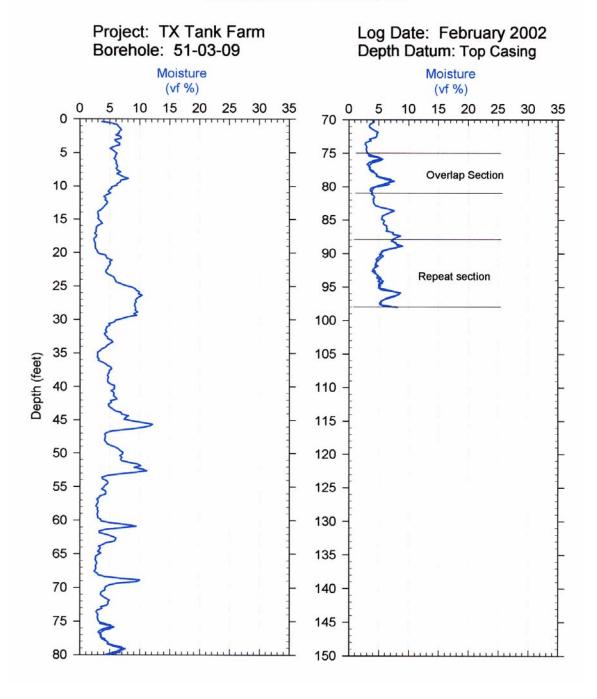
Logging Information

Log Type	Moisture Gauge	
Company	Duratek Federal Serv	vices
Date/Archive File Name	Feb 14&19, 2002	MB72Raw,MB73Raw
Logging Engineers	R. Z. Steffler	
Instrument Series	RLSM00.0	
Logging Unit	RLS3	
Depth Interval	0 to 81 ft	Prefix MB72
	75 to 98 ft	Prefix MB73
	98 to 88 ft	Repeat
Instrument Calibration Date	January 29, 2002	
Calibration Report	WHC-SD-EN-TI-300	6, Rev. 0

Analysis Information

Company	Pacific Northwest Geophysics
Analyst	Randall Price
Date	February 25, 2002

Notes: The repeatability (precision) of the moisture gauge measurement is excellent and identifies relative changes in moisture content.



Moisture Log Analysis & Summary

Duratek Federal Services, Inc.

Project: TX Tank Farm Well ID: 51-03-09
Log Type: Moisture Gauge Log Dates: Feb. 14&19, 2002

General Notes:

The precision (repeatability) of the moisture gauge survey is appropriate for identifying relative changes in moisture content.

Environmental Corrections: The drilling method and insufficient stick-up above the cement collar compromised attempts to measure casing thickness during logging operation. As an alternative, the thickness for schedule-40 6-inch casing (0.280 inch) was used. Since the thickness for the borehole casing is the same as the moisture calibration models, no casing thickness correction was required.

Density of the formation is assumed to be similar to the density of the moisture calibration models (1.70 to 1.76 g/cc). No formation density correction has been applied to the raw survey data.

Depth Reference: Zero depth reference of log survey is at top of casing.

System Performance Verification: The pre- and post-log verification measurements were (734, 733 c/s on 2/14/2002) and (728, 730 c/s on 2/19/2002). The system verification check measurements are consistent with previous system performance checks and within the normal observed range of 710 to 760 c/s.

Repeat Interval: The repeat interval (98 to 88 feet) and overlap interval (75 to 81 feet) show excellent agreement. The logging system performed according to specifications.

51-03-11 (299-W15-191) TX Tank Farm, Moisture: MB62

Neutron-Neutron Moisture Borehole Survey

Duratek Federal Services, Inc.

Log Header

Project:

TX Tank Farm

Borehole: 51-03-11

Log Type:

Moisture Gauge

Hanford ID: 299-W15-191

Borehole Information

Well ID	A7489	Water Depth None ft	Total Depth 100 ft
Elevation Referen	ce Top Casing	Elevation 205.719 M	200 pro-100 page 200
Depth Reference	Top Casing	Casing Stickup 0.0 ft	
Casing Diameter	6 in I.D.	Depth Interval 0 to 100 ft	Thickness 0.28 in
Casing Diameter	in I.D.	Depth Interval ft	Thickness in

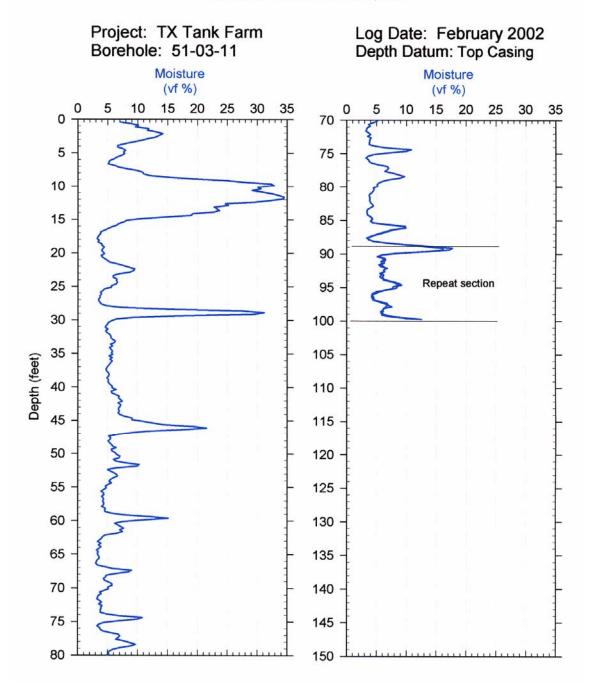
Logging Information

Log Type	Moisture Gauge	
Company	Duratek Federal S	Services
Date/Archive File Name	Feb 8, 2002	MB62Raw
Logging Engineers	R. K. Price	
Instrument Series	RLSM00.0	
Logging Unit	RLS3	
Depth Interval	0 to 99.8 ft	Prefix MB62
	99 to 84 ft	Repeat
Instrument Calibration Date	January 29, 2002	•
Calibration Report	WHC-SD-EN-TI-	306, Rev. 0

Analysis Information

Company	Pacific Northwest Geophysics	
Analyst	Randall Price	
Date	February 25, 2002	

Notes: The repeatability (precision) of the moisture gauge measurement is excellent and identifies relative changes in moisture content. Very high apparent moisture encountered in two zones above 30 feet.



Moisture Log Analysis & Summary

Duratek Federal Services, Inc.

Project:

TX Tank Farm

Well ID:

51-03-11

Log Type:

Moisture Gauge

Log Dates:

February 8, 2002

 $\underline{\textbf{General Notes:}}$ The precision (repeatability) of the moisture gauge survey is appropriate for identifying relative changes in moisture content. Very high apparent moisture encountered in two zone above 30 feet. Other boreholes in the area also had high moisture (51-03-01, 51-04-02, and 51-04-06)

Environmental Corrections: The drilling method and insufficient stick-up above the cement collar compromised attempts to measure casing thickness during logging operation. As an alternative, the thickness for schedule-40 6inch casing (0.280 inch) was used. Since the thickness for the borehole casing is the same as the moisture calibration models, no casing thickness correction was required.

Density of the formation is assumed to be similar to the density of the moisture calibration models (1.70 to 1.76 g/cc). No formation density correction has been applied to the raw survey data.

Depth Reference: Zero depth reference of log survey is at top of casing.

System Performance Verification: The pre- and post-log verification measurements were 741 and 720 c/s, respectively. The system verification check measurements are consistent with previous system performance checks and within the normal observed range of 710 to 760 c/s.

Repeat Interval: The repeat interval, 99 to 84 feet, shows excellent agreement. The logging system performed according to specifications.

51-03-12 (299-W15-126) TX Tank Farm, Moisture: MB63, MB64

Neutron-Neutron Moisture Borehole Survey

Duratek Federal Services, Inc.

Log Header

Project: TX Tank Farm Borehole: 51-03-12

Log Type: Moisture Gauge Hanford ID: 299-W15-126

Borehole Information

Well ID	A7425	Water Depth None ft	Total Depth 105 ft
Elevation Reference	ce Top Casing	Elevation 205.783 M	
Depth Reference	Top Casing	Casing Stickup 0.0 ft	
Casing Diameter	6in I.D.	Depth Interval 0 to 105 ft	Thickness 0.28 in
Casing Diameter	in I.D.	Depth Intervalft	Thicknessin

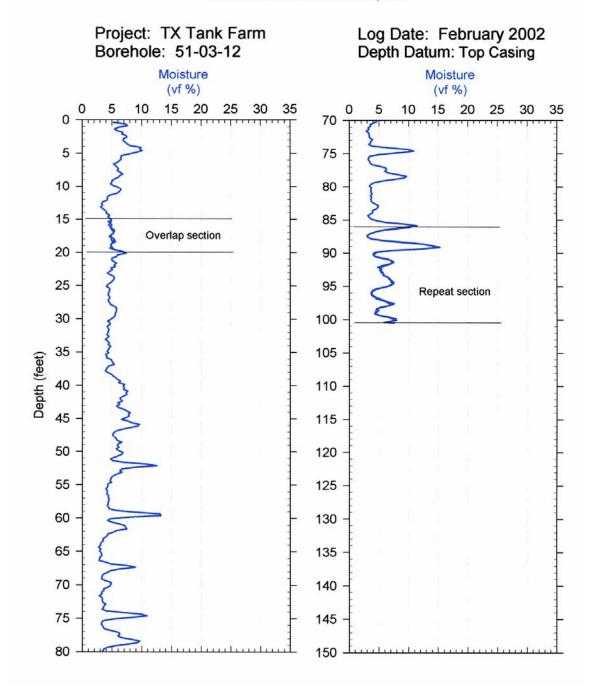
Logging Information

Log Type	Moisture Gauge	
Company	Duratek Federal Ser	vices
Date/Archive File Name	Feb 8&11, 2002	MB63Raw,MB64Raw
Logging Engineers	R.K. Price & J. E. M	1eisner
Instrument Series	RLSM00.0	
Logging Unit	RLS3	
Depth Interval	0 to 20 ft	Prefix MB63
*	15 to 100.6 ft	Prefix MB64
	100.5 to 86 ft	Repeat
Instrument Calibration Date	January 29, 2002	500 - 50 - 1 0 - 50 - 500 - 5
Calibration Report	WHC-SD-EN-TI-30	06, Rev. 0

Analysis Information

Company	Pacific Northwest Geophysics
Analyst	Randall Price
Date	February 25, 2002

Notes: The repeatability (precision) of the moisture gauge measurement is excellent and identifies relative changes in moisture content.



Moisture Log Analysis & Summary

Duratek Federal Services, Inc.

Project:

TX Tank Farm

Well ID:

51-03-12

Log Type:

Moisture Gauge

Log Dates:

Feb. 8&11, 2002

General Notes:

The precision (repeatability) of the moisture gauge survey is appropriate for identifying relative changes in moisture content.

Environmental Corrections: The drilling method and insufficient stick-up above the cement collar compromised attempts to measure casing thickness during logging operation. As an alternative, the thickness for schedule-40 6-inch casing (0.280 inch) was used. Since the thickness for the borehole casing is the same as the moisture calibration models, no casing thickness correction was required.

Density of the formation is assumed to be similar to the density of the moisture calibration models (1.70 to 1.76 g/cc). No formation density correction has been applied to the raw survey data.

Depth Reference: Zero depth reference of log survey is at top of casing.

System Performance Verification: The pre- and post-log verification measurements were (741, 720 c/s on 2/8/2002) and (735, 720 c/s on 2/11/2002). The system verification check measurements are consistent with previous system performance checks and within the normal observed range of 710 to 760 c/s.

Repeat Interval: The repeat interval (100.5 to 86 feet) and overlap interval (15 to 20 feet) show excellent agreement. The logging system performed according to specifications.

51-04-02 (299-W15-153) TX Tank Farm, Moisture: MB75

Neutron-Neutron Moisture Borehole Survey

Duratek Federal Services, Inc.

Log Header

Project:

TX Tank Farm

Borehole: 51-04-02

Log Type:

Moisture Gauge

Hanford ID: 299-W15-153

Borehole Information

Well ID	A7451	Water Depth 93.55 ft	Total Depth 105 ft
Elevation Referen	ce Top Casing	Elevation 205.556 M	
Depth Reference	Top Casing	Casing Stickup 0.0 ft	
Casing Diameter	6in I.D.	Depth Interval 0 to 105 ft	Thickness <u>0.28</u> in
Casing Diameter	in I.D.	Depth Intervalft	Thicknessin

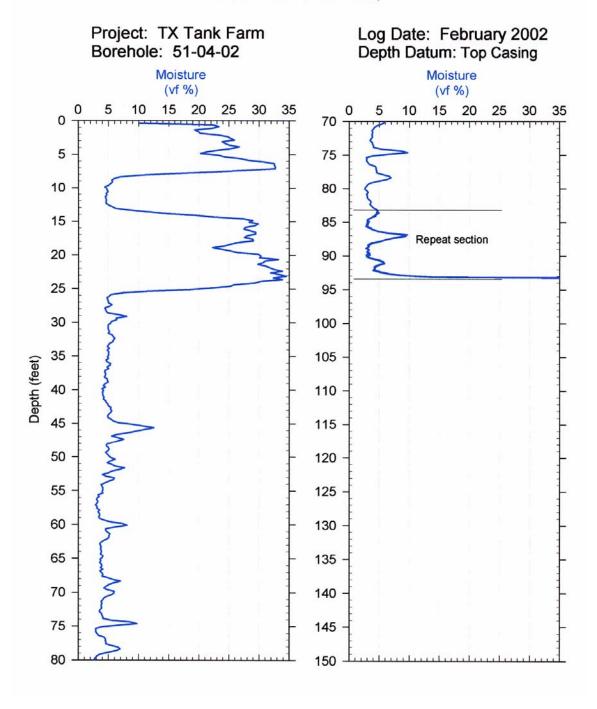
Logging Information

Log Type	Moisture Gauge	
Company	Duratek Federal Ser	vices
Date/Archive File Name	Feb 19, 2002	MB75Raw
Logging Engineers	R. Z. Steffler	
Instrument Series	RLSM00.0	
Logging Unit	RLS3	
Depth Interval	0 to 93.5 ft	Prefix MB75
	93.2 to 83.2 ft	Repeat
Instrument Calibration Date	January 29, 2002	
Calibration Report	WHC-SD-EN-TI-30	06, Rev. 0

Analysis Information

Company	Pacific Northwest Geophysics			
Analyst	Randall Price			
Date	February 25, 2002	- 1		

Notes: The repeatability (precision) of the moisture gauge measurement is excellent and identifies relative changes in moisture content. Very high apparent moisture encountered in two zones above 25 feet.



Moisture Log Analysis & Summary

Duratek Federal Services, Inc.

Project:

TX Tank Farm

Well ID:

51-04-02

Log Type:

Moisture Gauge

Log Dates: February 19, 2002

General Notes:

The precision (repeatability) of the moisture gauge survey is appropriate for identifying relative changes in moisture content. Very high apparent moisture encountered in two zone above 25 feet. Other boreholes in the area also had high moisture (51-03-01, 51-03-11, and 51-04-06)

Environmental Corrections: The drilling method and insufficient stick-up above the cement collar compromised attempts to measure casing thickness during logging operation. As an alternative, the thickness for schedule-40 6inch casing (0.280 inch) was used. Since the thickness for the borehole casing is the same as the moisture calibration models, no casing thickness correction was required.

Density of the formation is assumed to be similar to the density of the moisture calibration models (1.70 to 1.76 g/cc). No formation density correction has been applied to the raw survey data.

Depth Reference: Zero depth reference of log survey is at top of casing.

System Performance Verification: The pre- and post-log verification measurements were 728 and 730 c/s, respectively. The system verification check measurements are consistent with previous system performance checks and within the normal observed range of 710 to 760 c/s.

Repeat Interval: The repeat interval, 93.2 to 83.2 feet, shows excellent agreement. The logging system performed according to specifications.

51-04-05 (299-W15-130) TX Tank Farm, Moisture: MB61

Neutron-Neutron Moisture Borehole Survey

Duratek Federal Services, Inc.

Log Header

Project:

TX Tank Farm

Borehole: 51-04-05

Log Type:

Moisture Gauge

Hanford ID: 299-W15-130

Borehole Information

Well ID	A7429	Water Depth None ft	Total Depth 100 ft
Elevation Referen	nce Top Casing	Elevation 205.506 M	Service Control of the Control of th
Depth Reference	Top Casing	Casing Stickup 0.0 ft	
Casing Diameter	6in I.D.	Depth Interval 0 to 100 ft	Thickness 0.28 in
Casing Diameter	in I.D.	Depth Interval ft	Thickness in

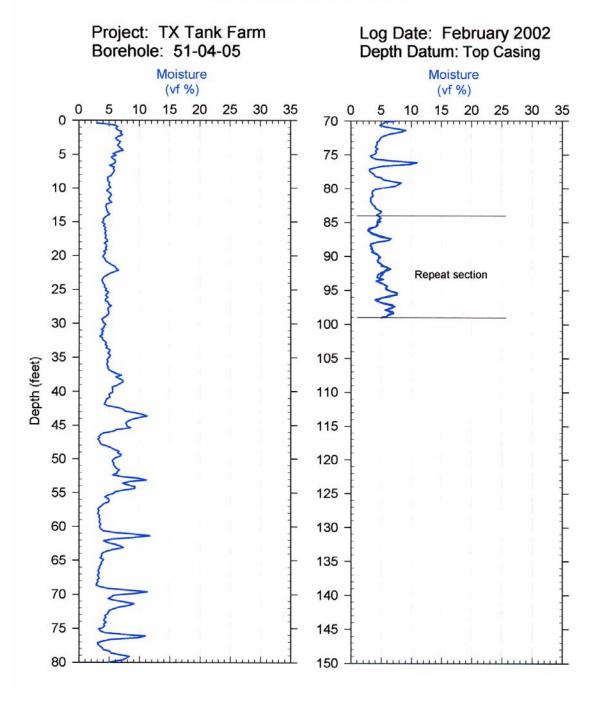
Logging Information

Log Type	Moisture Gauge	
Company	Duratek Federal Se	ervices
Date/Archive File Name	Feb 8, 2002	MB61Raw
Logging Engineers	R. K. Price	
Instrument Series	RLSM00.0	
Logging Unit	RLS3	
Depth Interval	0 to 99.2 ft	Prefix MB61
The same section of the sa	99 to 84 ft	Repeat
Instrument Calibration Date	January 29, 2002	
Calibration Report	WHC-SD-EN-TI-3	806, Rev. 0

Analysis Information

Company	Pacific Northwest Geophysics
Analyst	Randall Price
Date	February 25, 2002

Notes: The repeatability (precision) of the moisture gauge measurement is excellent and identifies relative changes in moisture content.



Moisture Log Analysis & Summary

Duratek Federal Services, Inc.

Project:

TX Tank Farm

Well ID:

51-04-05

Log Type:

Moisture Gauge

Log Dates: February 8, 2002

General Notes:

The precision (repeatability) of the moisture gauge survey is appropriate for identifying relative changes in moisture content.

Environmental Corrections: The drilling method and insufficient stick-up above the cement collar compromised attempts to measure casing thickness during logging operation. As an alternative, the thickness for schedule-40 6inch casing (0.280 inch) was used. Since the thickness for the borehole casing is the same as the moisture calibration models, no casing thickness correction was required.

Density of the formation is assumed to be similar to the density of the moisture calibration models (1.70 to 1.76 g/cc). No formation density correction has been applied to the raw survey data.

Depth Reference: Zero depth reference of log survey is at top of casing.

System Performance Verification: The pre- and post-log verification measurements were 741 and 720 c/s, respectively. The system verification check measurements are consistent with previous system performance checks and within the normal observed range of 710 to 760 c/s.

Repeat Interval: The repeat interval, 99 to 84 feet, shows excellent agreement. The logging system performed according to specifications.

51-04-06 (299-W15-154) TX Tank Farm, Moisture: MB59, MB60

Neutron-Neutron Moisture Borehole Survey

Duratek Federal Services, Inc.

Log Header

Project:

TX Tank Farm

Borehole: 51-04-06

Log Type:

Moisture Gauge

Hanford ID: 299-W15-154

Borehole Information

Well ID	A7452	Water Depth 94.9	ft	Total Depth 105 ft
Elevation Reference Depth Reference	te Top Casing Top Casing	Elevation 205. Casing Stickup 0.0	385 M	· · · · · · · · · · · · · · · · · · ·
Casing Diameter Casing Diameter	6in I.D. in I.D.	Depth Interval Depth Interval	105_ft ft	Thicknessin Thicknessin

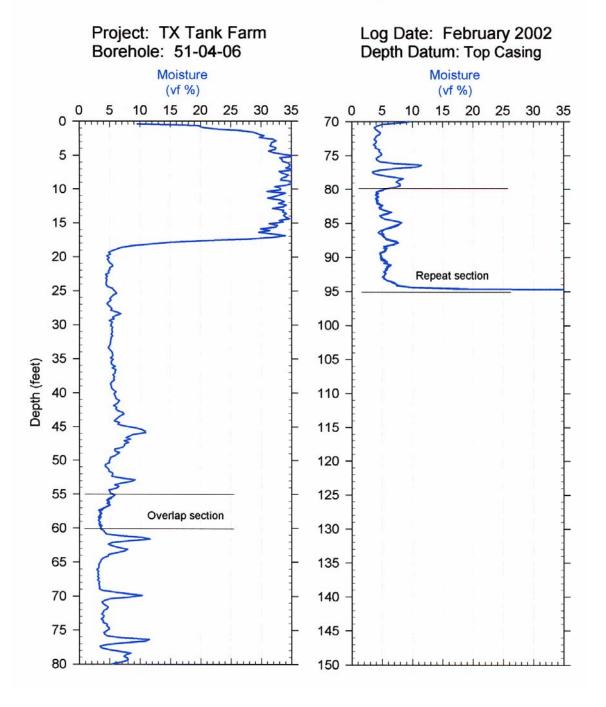
Logging Information

Log Type	Moisture Gauge	
Company	Duratek Federal Se	ervices
Date/Archive File Name	Feb 7-8, 2002	MB59Raw,MB60Raw
Logging Engineers	R. Z. Steffler & R.	
Instrument Series	RLSM00.0	
Logging Unit	RLS3	
Depth Interval	0 to 60 ft	Prefix MB59
	55 to 94.8 ft	Prefix MB60
	94.7 to 80 ft	Repeat
Instrument Calibration Date	January 29, 2002	
Calibration Report	WHC-SD-EN-TI-3	06, Rev. 0

Analysis Information

Company	Pacific Northwest Geophysics
Analyst	Randall Price
Date	February 25, 2002

Notes: The repeatability (precision) of the moisture gauge measurement is excellent and identifies relative changes in moisture content. Very high apparent moisture encountered in a zone above 20 feet.



Moisture Log Analysis & Summary

Duratek Federal Services, Inc.

Project: TX Tank Farm Well ID: 51-04-06 Log Type: Moisture Gauge Log Dates: February 19, 2002

General Notes:

The precision (repeatability) of the moisture gauge survey is appropriate for identifying relative changes in moisture content. Very high apparent moisture encountered in a zone above 20 feet. Other boreholes in the area also had high moisture (51-03-01, 51-03-11, and 51-04-02)

Environmental Corrections: The drilling method and insufficient stick-up above the cement collar compromised attempts to measure casing thickness during logging operation. As an alternative, the thickness for schedule-40 6-inch casing (0.280 inch) was used. Since the thickness for the borehole casing is the same as the moisture calibration models, no casing thickness correction was required.

Density of the formation is assumed to be similar to the density of the moisture calibration models (1.70 to 1.76 g/cc). No formation density correction has been applied to the raw survey data.

Depth Reference: Zero depth reference of log survey is at top of casing.

System Performance Verification: The pre- and post-log verification measurements were (718, 717 c/s on 2/7/2002) and (741, 720 c/s on 2/8/2002). The system verification check measurements are consistent with previous system performance checks and within the normal observed range of 710 to 760 c/s.

Repeat Interval: The repeat interval (94.7 to 80 feet) and overlap interval (55 to 60 feet) show excellent agreement. The logging system performed according to specifications.

Analysis by: Pacific Northwest Geophysics

51-05-05 (299-W15-145) TX Tank Farm, Moisture: MB70

Neutron-Neutron Moisture Borehole Survey

Duratek Federal Services, Inc.

Log Header

Project:

TX Tank Farm

Borehole: 51-05-05

Log Type:

Moisture Gauge

Hanford ID: 299-W15-145

Borehole Information

Well ID	A7444	Water Depth None ft	Total Depth 100 ft
Elevation Referen	ce Top Casing	Elevation 206.707 M	*
Depth Reference	Top Casing	Casing Stickup 0.0 ft	
Casing Diameter	6 in I.D.	Depth Interval 0 to 100 ft	Thickness 0.28 in
Casing Diameter	in I.D.	Depth Interval ft	Thickness in

Logging Information

Log Type	Moisture Gauge	
Company	Duratek Federal Se	rvices
Date/Archive File Name	Feb 13, 2002	MB70Raw
Logging Engineers	R. Z. Steffler	
Instrument Series	RLSM00.0	
Logging Unit	RLS3	
Depth Interval	0 to 98.5 ft	Prefix MB70
	98.5 to 83.5 ft	Repeat
Instrument Calibration Date	January 29, 2002	day and the same and
Calibration Report	WHC-SD-EN-TI-30	06, Rev. 0

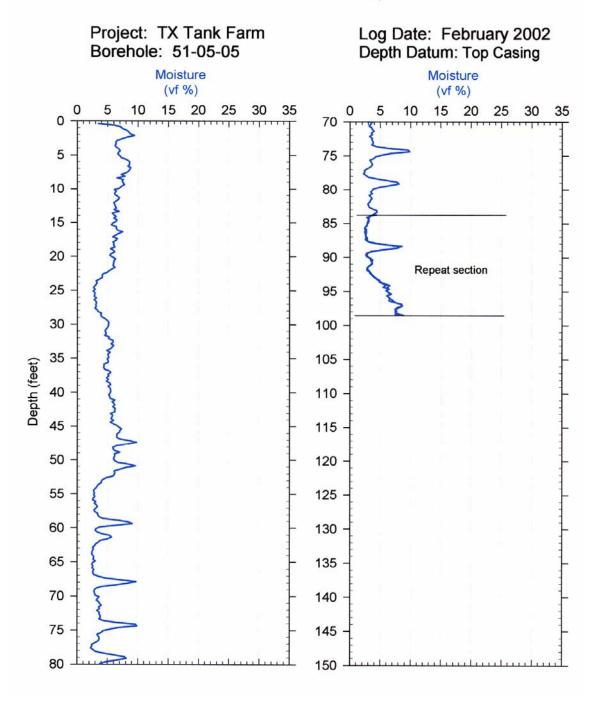
Analysis Information

Compan	y Pacific Northwest Geophysics
Analyst	Randall Price
Date	February 25, 2002

Notes: The repeatability (precision) of the moisture gauge measurement is excellent and identifies relative changes in moisture content.

RLS Neutron-Neutron Moisture

Duratek Federal Services, Inc.



RPP-12017, Rev. 0

Moisture Log Analysis & Summary

Duratek Federal Services, Inc.

Project:

TX Tank Farm

Well ID:

51-05-05

Log Type:

Moisture Gauge

Log Dates: February 13, 2002

General Notes:

The precision (repeatability) of the moisture gauge survey is appropriate for identifying relative changes in moisture content.

Environmental Corrections: The drilling method and insufficient stick-up above the cement collar compromised attempts to measure casing thickness during logging operation. As an alternative, the thickness for schedule-40 6inch casing (0.280 inch) was used. Since the thickness for the borehole casing is the same as the moisture calibration models, no casing thickness correction was required.

Density of the formation is assumed to be similar to the density of the moisture calibration models (1.70 to 1.76 g/cc). No formation density correction has been applied to the raw survey data.

Depth Reference: Zero depth reference of log survey is at top of casing.

System Performance Verification: The pre- and post-log verification measurements were 728 and 734 c/s, respectively. The system verification check measurements are consistent with previous system performance checks and within the normal observed range of 710 to 760 c/s.

Repeat Interval: The repeat interval, 98.5 to 83.5 feet, shows excellent agreement. The logging system performed according to specifications.

Analysis by: Pacific Northwest Geophysics

51-05-07 (299-W15-171) TX Tank Farm, Moisture: MB69

Neutron-Neutron Moisture Borehole Survey

Duratek Federal Services, Inc.

Log Header

Project:

TX Tank Farm

Borehole: 51-05-07

Log Type:

Moisture Gauge

Hanford ID: 299-W15-171

Borehole Information

Well ID	A7469	Water Depth None ft	Total Depth 110 ft
Elevation Referen	ce Top Casing	Elevation 206.199 M	€ /************************************
Depth Reference	Top Casing	Casing Stickup 0.0 ft	
Casing Diameter	6in I.D.	Depth Interval 0 to 110 ft	Thickness 0.28 in
Casing Diameter	in I.D.	Depth Intervalft	Thickness in

Logging Information

Log Type	Moisture Gauge	
Company	Duratek Federal S	ervices
Date/Archive File Name	Feb 13, 2002	MB69Raw
Logging Engineers	J. E. Meisner	
Instrument Series	RLSM00.0	
Logging Unit	RLS3	
Depth Interval	0 to 107 ft	Prefix MB69
	107 to 92 ft	Repeat
Instrument Calibration Date	January 29, 2002	
Calibration Report	WHC-SD-EN-TI-	306, Rev. 0

Analysis Information

Company	Pacific Northwest Geophysics
Analyst	Randall Price
Date	February 25, 2002

Notes: The repeatability (precision) of the moisture gauge measurement is good and identifies relative changes in moisture content.

RPP-12017, Rev. 0

Moisture Log Analysis & Summary

Duratek Federal Services, Inc.

Project:

TX Tank Farm

Well ID:

51-05-07

Log Type: Moisture Gauge

Log Dates: February 13, 2002

General Notes:

The precision (repeatability) of the moisture gauge survey is appropriate for identifying relative changes in moisture content.

Environmental Corrections: The drilling method and insufficient stick-up above the cement collar compromised attempts to measure casing thickness during logging operation. As an alternative, the thickness for schedule-40 6inch casing (0.280 inch) was used. Since the thickness for the borehole casing is the same as the moisture calibration models, no casing thickness correction was required.

Density of the formation is assumed to be similar to the density of the moisture calibration models (1.70 to 1.76 g/cc). No formation density correction has been applied to the raw survey data.

Depth Reference: Zero depth reference of log survey is at top of casing.

System Performance Verification: The pre- and post-log verification measurements were 715 and 730 c/s, respectively. The system verification check measurements are consistent with previous system performance checks and within the normal observed range of 710 to 760 c/s.

Repeat Interval: The repeat interval, 107 to 92 feet, shows good agreement. The logging system performed according to specifications.

Analysis by: Pacific Northwest Geophysics

APPENDIX D CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUESTS

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Fig. 10 28 27 28 28 28 28 28 28	Duratek		CHA	INOFC	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		C.O.C# 102214
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AG&G	SAF Number S02-046			Sampl	e Origin	Purchase Order/Charge Code	
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	S02046-01		2021 2	(1) 1000 aG	Semi-VOA (8270)		Cool to 4°
	S02046-01		2 1705	Ξ			H2SO4
	S02046-01		50217	(1) 1000 P	Total Alpha / Beta (Lab Specific), GEA		HNO3
12.05 (3) 40 aGs VOA V	S02046-01		1205	(1) 1000 P	Tritium, (H3)		Cool to 4°
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ollector K.3. Jouns		Contact/Requestor Sybalo R.	DR. HAROLD	Tcl. No. 372 -9414 MSIN	H0-22FAX	
AF Number 5'02 - 046	S	Sample Origin	TX- Form	Purchase Order/Charge Code		
roject Title TX BOREHOLE	(63830)	Logbook# DTSHW- SAUS	- SAWS - HSK	Ice Chest # D Cm - 01	1 Temp.	
hipped To (Lab) MG + G	N.	Method of Shipment Go	Ger Truck	Bill of Lading/Air Bill No.		
rotocol RCRA		Data Turnaround Per CONTRACT	CONTRACT	Offsite Property No.		
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FINAL SAMPLE Disposal Method e.g. Return to DISPOSITION	Disposal Melhod e.g. Return to custemer, per lab procedure, used in process.	ed in process.	Disposed By		Date/Time	

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Tile TX BOREHOLE (C3830) TO (Lab) AG + G RCRA ICRA ILAD-ID * Date Time	Sample Origin	1 8		
10 (Lab) AG+G 17 CAA 18 No. Lab. 10 * Date Time	Logbook# OF	Logbook# OFSHW-SAWS- HAS	lee Chest # Drom - Ol Temp.	
ie No. Lab. 1D * Date Time	Method of Shipment Arock	1 0	Bill of Lading/Air Bill No.	
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Relinquished By Date	Date/Time Received By		DateTime	
FINAL SAMPLE Disposal Method c.g. Return to customer, per lab procedure, used in process.	cedure, used in process.	Disposed By	Date/Time	

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	Sorvices)) 			Page 1	- Jo
Collector K. J. Y	Sunaja		•	Contact/Requ	Contact/Requestor Sybnor HAROLD	Tel. No. 372-9414 MISIN	HO-22FAX	×
	5,02-046	(52835)		sample Origi	Sample Origin TX TAC	Purchase Order/Charge Code		
X	BOREHOLE	(cs830)		ogbook#	Logbook # DFSNX - SALS - HSS	lee Chest # Drom #	Temp.	
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FINAL SAMPLE Disp	Disposal Method e.g. Return to customer, per lab procedure, used in process.	o customer, per lab	procedure, use	ed in process.	Disposed By		Date/Time	

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Relinquished By	Date/Time	Received By	D	Date/Time	
FINAL SAMPLE Disposal Method c.g. Return to customer, per lab procedure, used in process.	um to custamer, per lab procedure,	used in process.	Disposed By		DateTime

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Collector	5	Contact/Requestor Sybnor, HAROLD	OR, HAROLD	Tel. No. 372-9414 MSIN	HO-22MAX
SAF Number 502 - 046	(25852)	Sample Origin 1X TAIM	7 L	Purchase Order/Charge Code	
Project Title TX BOREHOLE		Logbook# OFSHW -SAWS-	W-SAWS- HSS	Ice Chest # Door # 1	Temp.
	v 253	Method of Shipment	Gov. Truck	Bill of Lading/Air Bill No.	
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ollector K.J/o	00.00			Contact/R	Contact/Requestor Salacion Long N	Tel. No. 222 C. MSIN	YVICE .
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APPENDIX E FIELD DOCUMENTATION

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	Blow Count Form			Page	of 12
	Date: 5 2-3 02 Location: TX TAN Borehole No.: C383	K FAYN Pers	erator: BSE sonnel: 12		ner: ICE 40S
2 8	Starter casing size: Drive casing size/type: Tip: 7.5" x 1 Joints: Welded:	4.5 " Tota 7,34 " Cor	al Depth:ical:4.75*;	h: 0,0 F 15.09 FT E.D.	T- 15.09 bgs
	Depth	Blows/Ft.	Ave. Stroke	Driving time	Tip depth
02/02	O To 1.0	6	.	12:15	1
	1.0 To 2.0	7			
	2.0 To 3.0	7			
	3.0 To 4.0	8			
	4.0 то 5.0	8			
4	5.0 To 5.69	7			
7.	5.69 TO 6.69	11			
	6.69 To 7.69	9		350	
	7.69 TO 8.69	10	N/A	N/A	N/A
0.40	8.69 To 9.69	10		1	
	9.69 TO 11.09	4.09	Total Control	10:21	
5/03/02	11.09 To 12.09	13		11:13	
	12.09 To 13.09	14			
. 8	13,09 To 14.09	15			
	14.09 TO 15.09	14			15,09
	Prepared by:_	K. Reynolds	Rev	viewed by: D.	skoglië

	Blow Count Form				Pag	e 2 of	12
	Date: 5 3-8 0Z Lodation: TX Tan Borehole No.: C;	Ope <u>K Farm</u> Per 383 2 Rig	erator: sonnel: :/C	BSE 121 56	7	er:_ICE 40	
	Starter casing size: Drive casing size/type: Tip: 7.5 " × Joints: Welded:	17.34" Cor	ter casing al Depth:_ nical: eaded:	4.75	15.09 - 2 8.63 FT 50 "I.D. PINPILE	8.63	
	Depth	Blows/Ft.	Ave.	Stroke	Driving time	Tip depth	
5/03/02	15.09 To 16.21	12			11:15	15.00	4
5/06/02	15.0 To 16.0	13 (Redrive)			e, 93		
	16.0 TO 17.0	14				a 9	
	17.0 то 18.0	13			š		42
7 3 70	18.0 To 19.0	13	702.				
10 H	19,0 To 20.68	12	A		10:16		
	20.68 To 21.68	10		4 1	10:46		
E 51	21.68 To 22.68	9				12	
a made T	22.68 To 23.68	12					- 2
190	23.68 To 24.68	14	~/	A .	N/A	N/A	4
	24.68To 25.68	6		20.00	1 :		1
× .	25.68 TO 26.02	15			10:47	8.7	
5/07/02	26.02 TO 27.02	15			10:49		÷.
	27,02 To 28.02	15 Rednie	22		10:50	l	
5/08/02	27.63 To 28.63	Rednie			<u> </u>	28.63	
210010	Prepared by:_	K. Reynolds		Review	ved by: とら	Koghie	

Blow Count Form			Яза	03 01 12
Date: <u>5 8 02</u> Lo c ation: <u>TX TAM</u> Borehole No.: <u>C3</u>	Ope Ope Ope Ope Ope Ope Ope Ope	erator:	35 E 1217 Hamm	Oner: ICE 40S
Starter casing size: Drive casing size/type: Tip: 7.5 '' k Joints: Welded:	7" Star 4.5" Tot 17.34" Cor N/A Thr	rter casing depth: al Depth:nical:4.7 readed:442	78,63- 4 42 FT bgs 5" I.D. PINPILE	12.0
Depth	Blows/Ft.	Ave. Stroke	1	
28.63 _{To} 29.03	N/A	1		28.63
29.03 To 29.59	9			
29.59 To 30.59	10		7:56	
30. ⁵⁹ To 31. ⁰⁹	3		8:31	
31.09 To 32.09	8			
32.09 To 33.09	6			
33.09 то 34.09	6			
34.09 To 35.09	7			
35,09 To 36.09	6		8;32-	
36.09 TO 37.0	14		11:33	
37.0 To 38.0	12	1		1
38.0 To 39.0	13	N/A	N/A	N/A
39,0 To 40.0	13			
40,0 To 41.0	13		11:35	
41,0 To 42,0	10			42.0

50/80];

	Blow Count Form			Pa	ge 4 of 12
	Date: <u>5/08-9/02</u> Location: <u>7X 741</u> Borehole No.: <u>38</u>	Ope <u>OK FAYM</u> Pers 32 Rig:	rator: <u>BSE</u> connel: 12	77	ner: ICE 40S
	Starter casing size: Drive casing size/type: Tip: 7.S " Y Joints: Welded:	7" Star 4.5" Tota 7.34" Con N/A Thre	ter casing depth: al Depth: ical: 4.79 eaded: 412	42.0 - 5 51.18 FT 1 5" ID.	7,18 ogs
*	Depth	Blows/Ft.	Ave. Stroke	Driving time	Tip depth
108/02	42.0 To 43.0	8			42.0
	43.° To 44.14	9			
109/0Z S	44.14 To 45.14	6			
Sample (45.14 TO 45.54	4			
	44,14 To 45,14	Redave		1036	3.7
	45,14 To 45,95	18		10:37	
	45,95 To 47,18	31			
74-77	47.18 TO 48.18	32			
	48.18 TO 49,18	30			
	49.18 To 50.18	29			
450 /	50,18 To 51.18	27			1
)	51,18 To 51.68	3	N/A	N/A	N/A
mple {	51.68 To 52.18	3			75
	52,18 To 52,58 	2			
	- N/A -				
	Prepared by:_	D. SKoglie	Revie	wed by:	Luste
				1777	

	Blow Count Form			Page 5	of 12
	Date: <u>05/13 - 10 </u> Lo g ation: <u>TX TAB</u> Borehole No.: <u>C 3 8</u>	Ope **NIK **FARM** Pers **Rig:	rator: BSE onnel: 121	7Hamm	er: ICE 40S
	Starter casing size:	7" Star 4.5 " Tota X 17.34" Con	ter casing depth:	5/.18 - 60.12 FT 05" I.D	66.12- bgs
19	Depth	Blows/Ft.	Ave. Stroke	Driving time	Tip depth
	5/.18 To 51.93	10		08:40	51.18
	5/.93 To 53.08	19		08:41	
	53.08 To 53.68	3 (any)		10:06	
mple)	53.68 To 54.28	2			
	54.28 To 54.43	2		10:07	.51
77 to 17	53.08 To 53.87	5			2
22.	53.87 To 54.87	16			p
	54.87 To 55.87	22	,		1001
	55.87 To 56.87	24			l
	56.87 To 57.87	29	N/A	N/A	NA
	57.87 To 58.87	32			
	58.87 To 59.87	36			1
	59.87 To 60.12	8			60.12
	To MA				
*	To				-
	Prepared by:_	D. SKOGLIE	Revie	wed by:	Kul

	Blow Count Form			Pag	e 6 0/ 12
	Date: 05/13-14 / Location: 7X 7. Borehole No.: 23	ANK FARM Pers	rator: <u>B</u> onnel: /2	SE 217	ner: ICE 40S
	Starter casing size: Drive casing size/type: Tip: Joints: Welded:	<u> 4.5 ^</u> Tota メ <i>い</i> プスタザ Con	ical: 4.	60.12 - 69.01 FT 1 75" I.D. 2 PIN PILE	69.01 09.5
	Depth	Blows/Ft.	Ave. Stroke	Driving time	Tip depth
	60,12 To 60.72	3 (1 dry)		07:40	
mple)	60.72 To 61.32	3		1	
	61.32 To 61.52	2		0741	
14	60.12 To 61.76				
ple)	61.76 To 62.26	3			
	62.26 To 63.76	2			
	62.76 TO 63.36	3			V
	61.76 TO 62.76	15			141
	62.76 To 63.76	19	1		
	63.76 To 64.76	26	N/A	N/A	N/A
¥1	64.76 TO 65.86	31			
10	65,86 To 66,86	33			
	66.86 TO 67.86	41			
	67.86 TO 68.86	38			
	68,86 TO 69.01	6		14:54	69.01
		D. SKOGLIE	Revie	wed by: Land	A CONTRACTOR

	Blow Count Form					PAG	€ 7	of 12
	Date:	32 Ri	g:	106		Hamn	ner:_ICE	E 40S
	Starter casing size: Drive casing size/type: Tip: 7,5" Joints: Welded:	4.5" To	arter casin otal Depth: onical: oreaded:	4.	75 I.Z	S	78, 99 395	?
	Depth	Blows/Ft.	Ave.	Stroke	Driving	time	Tip de	oth
	69.01 To 69.51	3 (2 004)			07:5	53		
o46-10	69.51 To 70.01	2.						
	70.01 To 70.31	1	*		07:0	55		
	69.01 To 70.95	22						
	70.95 To 71.95	24						
	71.95 To 72.95	34						
*	72.95 To 73.95	34						
4	73.95 To 74.95	34			1		,	l
	74.95 To 75.99	35	N,	/A	~,	A	N	/A
mple {	75,99 TO 76.59	3 (eduy)			1214	10		
046-11	76.59 To 77.09	Z						
. (77.09 To 77.39	1			12:1	1		
	75.99 To 76.99	13			1			
	76.99 To 77.99	25						
7.7	77,99 To 78,99	28						
		D. SKoglie		Revie	wed by:_	W.	SKA A	4

	Blow Count Form			PA	16E8 of 12
	Date: _5/16-17/07 Location: _TX TA Borehole No.:C38	Ope On K Farm Pers 32 Rig:	rator: <u>85</u> onnel: <u>12</u>	(<u>E</u> 17 Hamn	ner: ICE 40S
	Starter casing size: Drive casing size/type: Tip: 75" K Joints: Welded:	77.34" Con	ter casing depth: al Depth: 86 ical: 4.7 eaded: 47	15 'I.D.	86.99
	Depth	Blows/Ft.	Ave. Stroke	Driving time	Tip depth
sample S	78,99 To 79.49	6 (1dry)		12:40	
2046-12	79.49 To 79.99	4			
	79.99 To 80.31	2		12:41	
	78.99 To 79.99	14			
	79,99 To 80.99	13			
	80,99 To 81.99	24			
	81.99 To 82.99	27		1. 1	
sample 5	82.99 To 83.49	2		11:12	*
rample }	83.49 To 83.99	2			
	83.99 To 84.34	1		11:13	
2	82.99 To 83.99	14		1	1
	83.99 To 84.99	19	N/A	N/A	N/A
	84.99 To 85,99	19		1	-
	85.99 _{To} 86.99	25		14:02	
**	То			1	1
	Prepared by:_	D. SKoglie	Revie	wed by:	Replace

	Blow Count Form			PAGE	9 of 12
	Date: 05 20 -21 / Location: 7 TA Borehole No.: C 3	02 Ope. 01 Farm Pers 832 Rig:	rator: <u>BS t</u> onnel: 12 106	17 Hamm	ner: ICE 40S
	Starter casing size: Drive casing size/type: Tip: 7.5" X Joints: Welded:	77.34 " Con	ter casing depth: 1 Depth: 2 Graded: 4 Graded:	5.64 PT 50	95,64 gs
m	Depth	Blows/Ft.	Ave. Stroke	Driving time	Tip depth
sample S	86.99 _{To} 87.49	2 (1 duy)		09:15	86.99
2046-14)	87.49 To 87.99	5			
	87.99 To 88.41	2		09:18	
	86.99 To 87.99	11			
	87.99 To 88.99	12			*
25.00.0	88.99 To 89.99	17			
,	89.99 To 90.99	23	1		
	90.99 To 91.99	15	N/A	N/A	N/A
	91.99 To 92.99	26		1	
imple S	92,99 To 93,49	3 (idry)		14:29	
2046-15/	93.49 To 93.99	3			
- (93,99 To 94.4	3		1430	
	92.99 To 93.99	۲٦			week and the second
	93,99 To 94,99	20			
	94,99 To 95,64	20			95.64
	Prepared by:_	D. SKoglie	Revie	wed by:	Rylls

	Blow Count Form			Page	10 oF
	Date: 5/23-28/ Lo c ation: 7X 74/ Borehole No.: C 32	VK FARM Pers	rator: <u>35</u> onnel: /21	E 7	ner: ICE 40S
	Starter casing size: Drive casing size/type: Tip: 7.5" x Joints: Welded:	<u>4.5"</u> Tota (17.34 " Con	ter casing depth: al Depth: ical: deaded: 4	75" I.D.	95
	Depth	Blows/Ft.	Ave. Stroke	Driving time	Tip depth
mple S	95.64 To 96.14	5 (Idry)		11:05	95.64
2046-16	96.14 To 96.64	5			
	96.64 To 97.04	2		11:08	
	95,64 To 96.54	17			
	96.54 To 97.54	28			
•	97.54 To 98.54	33			
	98.54 To 99.54	31			2
	99,54 TO 100,54	16	-		
	100.54 To 101.54	27	N/A	N/A	N/A
	101.54 TO 102.54	29			
	102.54 To 103.94	28			
imple)	103.94 _{To} 104.44	3 (1dry)			
	104.44 To 104.94	3			
	104.94 To 105,36	2		ı	•
,	103.94 To 104.94	16		11:44	104.94
		D. SKoglie	Revi	ewed by:	Rall

	Blow Count Form			PAGE 11	OF 12
	Date: <u>5/28-30/0</u> . Location: <u>TX TAN</u> Borehole No.: <u>C38</u> .	K FARM Pers	erator: <u>BSE</u> sonnel: /2/ : /06	/	ner:_ICE 40S
	Starter casing size: Drive casing size/type: Tip: 7.5" X Joints: Welded:	4,5" Tot	rter casing depth: al Depth: nical: eaded: 4	104.94- 1,77 PT 50 75" I.D. 1/2 PIN PILE	35
	Depth	Blows/Ft.	Ave. Stroke	Driving time	Tip depth
	104.94 _{To} 105.94	18			104.94
	105.94 To 106.94	25			
	106.94 To 107.94	31			
	107.94 To 108.94	32			
55. 55	10894 TO 10991	33			*
amale (109.91 To 110.41	5		14:31	-
2046-18	109.91 To 110.41 110.41 To 110.91	4		1	
	110.91 To 111.38	3		14:33	
	109.91 To 110.96	20		1	
	110.96 To 111.96	22	N/A	N/A	MA
	111.96 To 112.96	50			
	112.96 To 113.77	147		08:56	
ample (113.77 To 114.27	13		11:03	E .
2046-	114.27 To 114.77	21			
(, (//4. 77 To //5, 2	36 thoffle		11:10	113.77
C		D. SKogli	e Revie	ewed by: Lus	Ryll

	Blow Count Form				12 of 12
	Date: <u>5/30-31/02</u> Lo c ation: <u>TX TANA</u> Borehole No.: <u>C38</u>	72 Dia	1/1/	Llamm	ner: ICE 40S
	Starter casing size: Drive casing size/type: Tip: 7.5 K Joints: Welded:	77.34 " Con	ter casing depth: al Depth: cal: eaded: 4/	75 I.D	95
	Depth	Blows/Ft.	Ave. Stroke	Driving time	Tip depth
	113.77 To 114.0	60			113,77
	114,0 To 114.24	102		09:12	
	То	TAG both	m hole @	114.47	
ple {	114,47 To 114.97	6			
1-20	114.97 To 115.47	1(
	115,47 To 115.89	20			114.24
	То				
	To 701	AL DEPTH	115.89 F	T 595,	
	То				
	To				
	To				
	N/A To	N/A	N/A	NA	N/A
	То				
	To				
	To				
	Prepared by:	D. SKoglie	Revie	wed by:	Ryll

DRIV	E Durat	ek Fede	eral Services,	Inc., N	orthwest Ope	erations				
	TUI	BULAR G	OODS DUAL ST	RING T	ALLY SHEET	Pag	e 2 of 2			
DATE: 0	6/03/02 V	VELL NUM	BER: <i>C38</i> 32	CONTINUATION OF REPORT NUMBER: 23						
	CASING		INNER STRING	CASING INNER STRING						
JT. NO.	LENGTH (in feet)	JT. NO.	LENGTH (in feet)	JT. NO.	LENGTH (in feet)	JT. NO.	LENGTH (in feet)			
1A	1.45 (ShoE)	1B	0.82 (Tip)	19A	4.99 65,36	_19B	-2.0 off			
2A	1.99	2B	4,99 (c)	_20A-	2.0 OFF	20B	5,0 71.1			
3A	2.0	3B	5.25	21A	5.0 70.36	_21B	3.0 OFF			
- 4A	4.98 (10,42)	4B	5.01 (c)	22A_	3.0 OFF 4.99	22B/ }	5.0 (c) 76.11 5.0 81.11			
5A	5.0	5B	5.0	23A	75,53	23B	01. "			
6A	4.99	6B	(5.02 (c)	24A	4,77 80,34	-24B	3.0 -3.0 off 5.01			
7A	4.98	7B Z	5.0	_25A	3.0 off	25B ∫	(6) 86.1			
8A	5.0 (30.39)	_8B	-2 off	26A	5.0 85,34	_26B	-2.0 OFF			
9A	-2 off	9B ₂	5.01 36.10	_27A_	-2.0 OFF	27B	4.0 OFF			
10A	5.0 35,39	10B	5.0 41.10	_28A_	4.0 off	28B	5.0 91.12			
11A	5.0 40.39	11B	5,01(c) 46.11	29A	5.0 90.34	29B	5,0 (c) 96.13			
12A	50 45,39	121	-3.01 OFF	30A	5.0 95.34	_30B	-2.0 OFF			
13A	3.0 OFF	13B	5.0 51.11	_31A	-2.0 OFF	31B	5.01			
14A	5.0 50.39	14B	4.99 (0) 56.10	32A	5,010034	3210	5,01 3.0 3.0 3.0			
15A	4.99 55.38	_15B	-7.0 off	33A	5.0 105.34	33B	-3.0 OFF			
16A	-2.0 OFF	16B	5.0 61.1	_34A	-3.0 OFF	34B	5.0			
17A	4.99 60.37	_178	4.0 -4.0 OFF	35A	5.0 110.34	_35B	-40 OFF			
18A	4.0 OFF	18B (5.0 (c) 66.1	36A	4.0 OFF	36B ∫	5.61 116.16			
TOT	AL for Page:	16 ¹	FT	TOTAL fo	or Dagge	11	FT			
	AL for Page:	NA	FT	TOTAL fo		A	FT			
	'AL (ALL):		FT	TOTAL (A			FT			
REPORT	BY: DE Skoglie			REVIEWE	ED BY: MG Gardner					
	ield Team Lead)	DATE;	6/03/02		roject Manager	DATE	: 8-13-02			
SIGNATU	TRE: Land	Thos	lii	SIGNATU	RE: MG Carl	Ler				
DRTK-WS-003		-0								

DRI	VE Dura	atek Fede	eral Services,	Inc., No	orthwest Ope	rations	0.00				
	т	UBULAR G	OODS DUAL ST	RING TA	LLY SHEET	Pag	e 3 of 3				
DATE: O	6/03/02	WELL NUM	BER: (3832	CONTINUATION OF REPORT NUMBER: 23							
	CASING		INNER STRING		CASING		INNER STRING				
JT. NO.	LENGTH (in fee	et) JT. NO.	LENGTH (in feet)	JT. NO.	LENGTH (in feet)	JT. NO.	LENGTH (in feet)				
3 7A	5.0 115.34	37B	30 OFF	19A		19B					
3-8A	3.0 OFF	3.8B	5.0 OFF OFF 121.16	20A		20B					
39A 0	F 120.34	3 9 B	3.0 119,16	21A		21B					
40A	3.0	4B		22A		22B					
5A		5B		23A		23B					
6A		6B		24A		24B					
7A	*	7B		25A		25B					
8A		8B	# E	26A		26B					
9A		9B		27A		27B					
10A		10B		28A		28B					
11A		11B		29A		29B					
12A		12B		30A		30B					
13A		13B		31A		-31B					
14A		14B		32A		32B					
15A		15B		33A		33B					
16A		16B		34A		34B					
17A		17B		35A		35B					
18A		18B		36A		36B	100000000000000000000000000000000000000				
ТОТ	'AL for Page:		FT	TOTAL fo	r Dage:		FT				
		NA	FT	TOTAL fo	1.70	/A	FT				
La service	'AL (ALL):		FT	TOTAL (A		10-2-11-10-11 14 14 15 15 15 15 15 15 15 15 15 15 15 15 15	FT				
Properties of the con-	BY: DE Skoglie	DATE: /	6/63/02		DBY: MG Gardner	DAT	B: 8-13-02				
SIGNATU DRTK-WS-003	TRE: Varl	Thogue		SIGNATU	re: <u>M<i>&</i>C</u>	serger					

Table E-1. Blow Counts. (2 sheets total)

Depth	Blows	
0.00	0.00	
1.00	6.00	
2.00	7.00	
3.00	7.00	
4.00	8.00	
5.00	8.00	
5.69	7.00	
6.69	11.00	
7.69	9.00	
8.69	10.00	
9.69	10.00	
11.09	9.00	
12.09	13.00	
13.09	14.00	
14.09	15.00	
15.09	14.00	
16.21	12.00	
17.00	14.00	
18.00	13.00	
19.00	12.00	
20.68	12.00	
21.68	10.00	
22.68	9.00	
23.68	12.00	
24.68	14.00	
25.68	6.00	
26.02	15.00	
27.02	15.00	
28.02	15.00	
28.63 29.03	8.00 10.00	
29.59 30.59	9.00	
31.09	10.00	
32.09	3.00 8.00	
33.09	6.00	
34.09	6.00	
35.09	7.00	
36.09	6.00	
37.00	14.00	
38.00	12.00	
39.00	13.00	
40.00	13.00	
41.00	13.00	
42.00	10.00	
43.00	8.00	
45.00	8.00	

Depth	Blows
44.14	9.00
45.95	18.00*
47.18	31.00
48.18	32.00
49.18	30.00
50.18	29.00
51.18	27.00
51.93	10.00*
53.08	19.00
53.87	5.00*
54.87	16.00*
55.87	22.00
56.87	24.00
57.87	29.00
58.87	32.00
59.87	30.00
60.12	8.00*
61.76	*
62.76	15.00
63.76	19.00
64.76	26.00
65.86	31.00
66.86	33.00
67.86	41.00
68.86	38.00
69.01	6.00*
70.95	22.00*
71.95	24.00
72.95	34.00
73.95	34.00
74.95	34.00
75.99	35.00
76.99	13.00*
77.99	25.00*
78.99	28.00
79.99	14.00*
80.99	13.00*
81.99	26.00
82.99	27.00
83.99	14.00*
84.99	19.00*
85.99	19.00
86.99	25.00
87.99	11.00*
88.99	12.00*
89.99	17.00

Depth	Blows	
90.99	23.00	
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102.54	29.00	
103.94	28.00	
104.94	16.00	*
105.94	18.00	*
106.94	25.00	
107.94	31.00	
108.94	32.00	
109.91	33.00	
110.96	20.00	*
111.96	22.00	*
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Blows

Depth

^{*}Blow counts—advance rate affected by sampling point

APPENDIX F FIELD LOGBOOK ENTRIES

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APPENDIX G EQUIPMENT CLEANING FORMS

6268 CLEANING FACILITY EQUIPMENT CHECK IN FORM CUSTOMER PROJECT QUANTITY . ITEM H. Sydnor Complete Split Spoons TX-104 (C3532) 21 CUSTOMER INFORMATION: The equipment that is being submitted for cleaning, to the best of my knowledge, meets the tollowing criteria for acceptance into the 6268 cleaning facility. Is new equipment that has never been utilized for field sampling. The equipment has been utilized for field sampling inside of a radiologically controlled area, but has been "free released" by field radiological control technicians. ____Date:____ If so, survey number: ______RCT signature: The equipment has been utilized for field sampling, but was not utilized a radiologically controlled area. Print Name: Date:___ RECEIPT INFORMATION Receiver: K. 1. Your Print Name for Jan Date: 4/16/02

6268 CLEANING FACILITY EQUIPMENT CHECK OUT FORM

Name and Address of the Owner, where the Owner, which the Owner, where the Owner, which the	NAME OF TAXABLE PARTY OF TAXABLE PARTY.			
QUANTITY	ITEM	CUSTOMER	PROJECT	TPCN or WORK ORDER
21	Complete Split Spoons	H. Sydnon	(3832	116991 12516
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*All equipment has been cleaned per ES-SSPM-001 SP 2-5, "Laboratory Cleaning of RCRA/CERCLA Sampling Equipment.

Custodian Signature:	Print Name: K. J. Jan	Date: 5/2/02
Customer Signature:	Print Name:	Date:

APPENDIX H

WASHINGTON STATE DEPARTMENT OF ECOLOGY DOCUMENTATION



Duratek Federal Services, Inc. Northwest Operations

345 Hills Street Richland, Washington 99352 (509) 376-7055 - Phone (509) 372-1435 - Fax

June 28, 2002

MGG-02-2225

Mr. Joe A. Caggiano State of Washington Department of Ecology 1315 West 4th Avenue Kennewick, Washington 99336

Dear Mr. Caggiano:

WATER WELL REPORT

Attached is the Water Well Report for decommissioning well C3832. Well 3832 is located in the 200 West Area (TX Tank Farm).

Please reference Start Card Numbers S00630 (Notice of Intent to Construct a Geotechnical Soil Boring) and A30603 (Notice of Intent to Decommission a Well).

If you have any questions, please contact me at 372-8029.

Very truly yours,

Martin G. Gardner, Manager Sampling and Well Services

jmt

Attachment

CHG - A. J. Knepp H0-22

H. A. Sydnor H0-22

CCI - J. E. Auten H9-03

DFSNW - K. D. Reynolds H1-11

D. E. Skoglie H1-11 S. H. Worley H1-11

MGG File/LB

772028/506

artment of Ecology and Copy - Owner's Copy STATE OF WASHINGTON	Notice of Intent						
OWNER: Name U.S. Department of Energy Add	ress <u>825 Jadwin, Richland, WA 99352</u>						
LOCATION OF WELL: County Benton STREET ADDRESS OF WELL: (or nearest address) Hanford Site, 200 TAX PARCEL NO.: N/A	NE 1/4 SW 1/4 Sec 1 t 12 N.R. 25E wm West Area, TX Tank Farm						
PROPOSED USE: Domestic Industrial Municipal (10) WELL LOG or DECOMMISSIONING PROCEDURE DESCRIPTION Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least							
TYPE OF WORK: Owner's number of well (if more than one) N/A New Well Method: Deepened Deepened Bored Reconditioned Cable Driven Decommission Rotary Detted	one entry for each change of information. Indicate all water encountered. MATERIAL FROM TO Characterization Boring As-Built Condition:						
445 44							
CONSTRUCTION DETAILS	Sand/Grave1						
□ Welded	Caliche 113.0 115.89						
	Total Depth 115.89 Back Pull Casing and fill 115.89 0 Borehole with Bentonite Crumbles.						
Manufacturer's Name Type Model No. Diam. Slot Size from fl. to fl. Diam. Slot Size from fl. to fl. Gravel/Filter packed: □ Yes No □ Size of gravel/sand							
PUMP: Manufacturer's Name							
Static levelft. below top of well Date Artesian pressurelbs. per square inch	Work Started May 2 ,2002 . Completed June 13, 2002 .						
Artesian water is controlled by(Cap, valve, gv.)	WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its						
Was a pump test made?	(Licensed Driller/Engineer) Trainee Name N/A License No. N/A						
	OWNER: Name U.S. Department of Energy Add LOCATION OF WELL: County Benton STREET ADDRESS OF WELL: (or nearest address) Hanford Site. 200 TAX PARCEL No.: N/A PROPOSED USE: Domestic Industrial Municipal Other						



Duratek Federal Services, Inc. **Northwest Operations**

345 Hills Street Richland, Washington 99352 (509) 376-7055 - Phone (509) 372-1435 - Fax

March 20, 2002

MGG-02-2083

State of Washington Department of Ecology Water Resources Program Well Drilling Unit Post Office Box 47600 Olympia, Washington 98504-7600

Dear Sir or Madam:

NOTICE OF INTENT TO CONSTRUCT GEOTECHNICAL SOIL BORINGS

Enclosed are three Notice of Intent to Construct a Geotechnical Soil Boring forms. These forms are completed with information pertaining to three geotechnical soil borings. The location of these geotechnical borings will be in the TX Tank Farm of the 200 West Area, Hanford Site, located at NE1/4 SW1/4 Section 1 Township 12N Range 25 E. The depth of the borings will be approximately 45.72 m (150 ft). The Hanford Well ID numbers assigned to these borings are C3830, C3831, and C3832.

Should you have any questions, or require additional information please contact me at (509) 372-8029.

Very truly yours,

M6 Gardrer

M. G. Gardner, Manager

Well Services

jar

Enclosures (3)

CHG H. A. Sydnor

CHI J. E. Auten

DFSNW -D. E. Skoglie MGG File/LB



Notice of Intent to Construct a GEOTECHNICAL SOIL BORING

S 00630

This form **must** be received by the Department of Ecology72 hours prior to construction of soil boring. Complete this form and mail to Department of Ecology, Water Resources Program, Well Drilling Unit, P.O. Box 47600, Olympia, WA 98504-7600. Instructions for filling out this form are printed on the back.

	Ciyinpia, VVA 30004-	rooo. manuchons for	ming out this form are	Dilintou on the bu	on.	
1.	Property Owner U,5,	Department	of Energy	Pho	ne No. (509) 373 9	630
	Address (include city, state	e, zip) 825 J	Admin Ave. A	rich Land	WA, 99352	
2.	Agent (if different from #1)					8029
	Address (include city, state	e, zip) 345 Hi	11s ST. Richl	and, w	4. 99352	
3.	Project Name TX VA	dose ZONE	PROJECT, B	ORING # C	3832	
4.	Well Location: NE 1/	4 of the <u>5W</u> 1/		wnship 12 N	Range 25 EWM or	(circle one)
	Address (if known) //A	N FORD Sin	te, 200 wes	t Area,	TX TANKWWM	FARM
5.	Location of Well(s)					
	☐ Adams County (01-ERO 🗆 (Grays Harbor County	14-SWR	☐ Pierce County	27-SWR
	☐ Asotin County (02-ERO 🗆 1	Island County	15-NWR	□ San Juan County	28-NWR
	Benton County (03-CRO 🗆 🗆	Jefferson County	16-SWR	□ Skagit County	29-NWR
	☐ Chelan County (04-CRO 🗆 1	King County	17-NWR	□ Skamania County	30-SWR
	☐ Clallam County (05-SWR	Kitsap County	18-NWR	☐ Snohomish County	31-NWR
	☐ Clark County (06-SWR 🗆 1	Kittitas County	19-CRO	□ Spokane County	32-ERO
	☐ Columbia County (07-ERO 🗆 1	Klickitat County	20-CRO	☐ Stevens County	33-ERO
	☐ Cowlitz County (08-SWR 🗆 1	Lewis County	21-SWR	□ Thurston County	34-SWR
	☐ Douglas County (09-CRO 🗆 1	Lincoln County	22-ERO	□ Wahkiakum County	35-SWR
	☐ Ferry County	10-ERO 🗖 1	Mason County	23-SWR	□ Walla Walla County	36-ERO
	☐ Franklin County	11-ERO 🗆 (Okanogan County	24-CRO	□ Whatcom County	37-NWR
	☐ Garfield County	12-ERO 🗆 1	Pacific County	25-SWR	□ Whitman County	38-ERO
	☐ Grant County	13-ERO 🗆 1	Pend Oreille County	26-ERO	☐ Yakima County	39-CRO
6.	Total number of borings to	o be constructed	 7. Approx 	soil boring cons	struction date MARCH	25,2002
8.	Well Drilling Co Name	BLUE STAR E	NTER PRISES	Phone i	No (509) 946 9	388
9.	Well Driller's Name M	e. Kelly Ol	SON	Driller's	License No 121	7
10	. Contractor's L & I Registra	ation NoBL	SESEI 980	06		
th	Please fill out the portion ne person submitting this not otification. Send the entire to .O. Box 47600, Olympia, W	tification. This portion form to Department	on will be validated ar	nd returned to th	nem as proof of	of
		mber <u>must</u> be prov Submit by (return a	vided to your well di address)	iller:	S	10630
	Name_ <i>MK</i> , <i>M</i> M	ARTIN G. GAI	Τ		Agency Val	idation
	City RichLAN	d State W.	A zip 99352		E	CY 040-55 (10/97)

APPENDIX I HEALTH AND SAFETY MONITORING



Duratek Federal Services, Inc. Northwest Operations

> 345 Hills Street Richland, Washington 99352 (509) 376-7055 - Phone (509) 372-1435 - Fax

May 15, 2002

MGG-02-2155

Mr. H. A. Sydnor CH2M HILL Hanford Group, Inc. Post Office Box 1500 Richland, Washington 99352-1505

Dear Mr. Sydnor:

SUBMITTAL OF RESULTS FROM TX DRILLING AND SAMPLING NOISE MONITORING

Reference:

Memo, J. G. Paetel, CHG, to T. D. Lippert, DFSNW, "Contract 8248, Release 55,

Request for Proposal/Notice to Proceed," dated December 13, 2001.

Duratek Federal Services, Inc. Safety and Health conducted noise monitoring at the TX tank farm vadose drilling and sampling site on May 14, 2002. The purpose of the noise monitoring was to determine the noise levels generated during casing and sampler driving activities and to evaluate the hearing protection requirements as specified in the job specific Activity Hazard Analysis.

Mr. Kelly Olson, the Blue Star Enterprises driller, wore a Metrosonics Metrologger personal monitoring device for the duration of his work shift (approximately eight hours). Mr. Olson was selected for the monitoring since he works closest to the diesel hammer when it is operated and operates all drill rig controls. The results of the data show a Time Weighted Average (TWA) of 94.0 dB, well above the OSHA standard action level of 85 dB TWA. This data is consistent with previous noise monitoring conducted on the SX Slant Hole project where the same drilling method was deployed. A copy of the summary report of the data download from the monitoring device and a chart with the data plot is attached for your review.

Activities performed by Mr. Olson and the drill crew were routine and typical for casing driving and sampling tasks with no unique activities conducted in or around the drill location. Therefore, the noise sample collected is an accurate representation of expected daily noise exposure while working on the deck of the drill rig. The procedures for minimizing the noise exposure to workers will remain consistent with the requirements set forth in the current approved job specific Activity Hazard Analysis (AHA-02-002). Those requirements are double protection while the diesel hammer is in operation and single protection during the remainder of the drilling activities (within the current exclusion zone).

Mr. H. A. Sydnor Page 2 May 15, 2002

MGG-02-2155

If you have any questions, or require additional information or documentation, please contact me at 372-8029. Thank you for the opportunity to be of service.

Very truly yours,

MG Can

M. G. Gardner, Manager Sampling and Well Services

jmt

Attachment

CHG - A. J. Knepp

P. K Aardal

- R. Dobush BSE

DFSNW - D. J. Moak

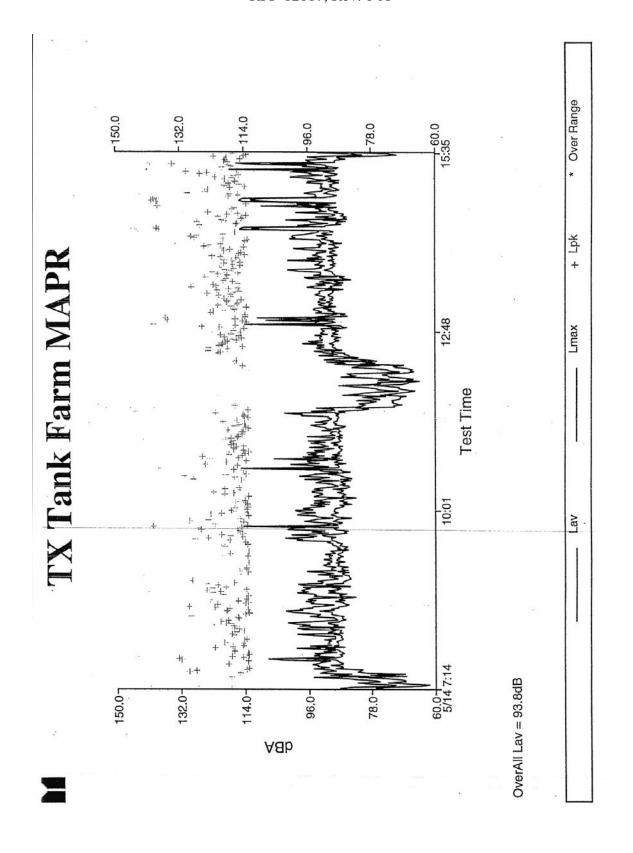
K. D. Reynolds

D. E. Skoglie

J. J. Sweesy

R. L. Van Wormer MGG File/LB

CHG/772028/506



RPP-12017, Rev. 0-A

Summary Report

Test Location....TX Tank Farm

Employee Name....Kelly Olson

Employee Number...0029732

Department......Blue Star Employee

Comment......performed normal borehole drilling activities. Good range of work

duties.

Metrosonics db-3100 SN 5711 V1.7

Report Printed 05/15/02 at 07:25

Exchange Rate...3 dB

Filter...A Wt.

Dose Criterion....85 dB

Response.....Slow

Calibrator Type.....Accustical SN..6114

Calibrator and Calibration Date..12/20/01

Pre-Test Calibration Time: 05/14/02 at 06:30

Pre-Test Calibration Range: 40.3dB to 140.3dB

Post Calibration 05/15/02 at 06:25

Test Began....05/14/02 at 07:14

Test Length....0 Days 08:22

Test Ended...05/14/02 At 15:36

Lav......93.8dB

Lav (80)...93.8dB

Lav (90)...93.1dB

SEL.....138.5dB

TWA.....94.0dB

TWA (80)..94.0dB

TWA (90)..93.3dB

Lmax...117.8dB on 05/14/02 at 15:21

Lpk.....141.0dBon 05/14/02 at 15:22

Time Over 115.0dB 0 Days 00:00:04

8 HR % Dose (80dB Cutoff)......804.09%

8 HR % Dose (90dB Cutoff).......687.61%